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U.S. Department of
Homeland Security

United States
Coast Guard



U.S. Coast Guard

Removal Action Completion Report

**USCG Atwater Facility
Detroit, Michigan**

Task Order Number: HSCG83-09-J-3CL358

Contract Number: HSCG83-08-D-3CL109

May 2014





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF: SR-6J

July 2, 2014

Gregory O. Carpenter
Chief, Environmental Compliance
United States Coast Guard
Civil Engineering Unit
1240 East Ninth Street, Room 2179
Cleveland, OH 44199-2060

Re: Remedial Action Completion Report
U.S. Coast Guard Atwater Facility
Detroit, Michigan
Tetra Tech, Inc., May 2014
Transmitted by your May 22, 2014 letter.

Dear Mr. Carpenter:

U.S. EPA has completed its review of the Remedial Action Completion Report (RACR). Soil contamination was previously addressed. Quarterly groundwater monitoring has now demonstrated that unrestricted residential groundwater cleanup goals have been achieved. Therefore, EPA concurs with the Coast Guard that no further action is necessary under CERCLA at the site.

If you have any questions I can be reached at 312 886-4843.

Sincerely,

A handwritten signature in black ink, which appears to read "W. Owen Thompson", is written over a horizontal line.

W. Owen Thompson
Remedial Project Manager
Superfund Remedial Response Section Seven

cc: Jaime Brown, Acting Chief, RRS#7
Brian Barwick, ORC
James A. Cook, USCG



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In April, 2013, the Coast Guard removed additional soil from the Atwater site, replaced two monitoring wells and began quarterly groundwater monitoring, in order to demonstrate that unrestricted residential groundwater cleanup goals have been achieved. The results of the first

round of quarterly sampling are presented in the *Groundwater Monitoring Report*. The report concludes that federal Maximum Contaminant Levels (MCLs) have been achieved for PAHs and metals at the site.

EPA concurs with the Coast Guard that use restrictions on groundwater would no longer be necessary under CERCLA if the next three rounds of groundwater sampling continue to show concentrations below MCLs.

It appears from referenced correspondence¹ that the cleanup may also achieve compliance with due care requirements of the State of Michigan Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA, as amended and the Part 201 Administrative Rules. Only the Michigan Department of Environmental Quality can make this determination.

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¹ November 29, 2009 Letter from Paul Owens, Environmental Manager, MDNRE EMD, Southwest District Office, to Will Tamminga, Director of Project Management, Detroit Economic Growth Corporation, regarding environmental issues for land exchange between the City of Detroit and U.S. Coast Guard for the Mt. Elliot Property.

**U.S. Department of
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Commanding Officer
United States Coast Guard
Civil Engineering Unit Cleveland

1240 East Ninth Street
Room 2179
Cleveland Ohio 44199-2060
Phone: (216) 902-6255
Fax: (216) 902-6277
Email: James.A.Cook@uscg.mil

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MAY 22 2014

United States Environmental Protection Agency
Region 5
Superfund Div, SR-6J
Remedial Response Section 6
Mr. Owen Thompson
77 West Jackson Boulevard
Chicago, IL 60604-3590

Dear Mr. Thompson:

Please find one disk and one copy of the Final Removal Action Completion Report for the USCG Atwater facility in Detroit, Michigan for your records.

In your August 29, 2013 letter, the USEPA provided a contingent approval of the USCG opinion that the site has an unrestricted use under CERCLA, the contingency being that groundwater would need to be monitored for site related constituents for four quarters. The USCG requests a final determination that the site is available for unrestricted use under CERCLA based on the groundwater results included in the attached

If you have any questions or would like to discuss these documents in detail, please contact Mr. James Cook at (216) 902-6255.

Sincerely,

A handwritten signature in blue ink, appearing to read "G. O. Carpenter".

Gregory O. Carpenter
Chief, Environmental Compliance
By direction of the Commanding Officer

Enclosures (2) Final Removal Action Completion Report (hard copy and CD): USCG Atwater facility, Detroit, Michigan, May 2014.



TETRA TECH

PITT 05-14-002

May 16, 2014

Project Number 112G02435

Commanding Officer
U.S. Coast Guard Civil Engineering Unit
Attn: Mr. James Cook
1240 E. Ninth St., Rm. 2179
Cleveland, OH 44199-2060

Reference: a. Contract HSCG83-08-D-3CL109; Miscellaneous A/E Environmental Services
c. Task Order HSCG83-09-J-3CL358; CERCLA Investigation at USCG Atwater Facility
Detroit, MI (21-09-8393CL358)

Subject: Final Removal Action Completion Report (RACR)

Dear Mr. Cook:

Attached please find five (5) copies of the subject report for the above-listed investigation that has been prepared in accordance with the CERCLA templates for your use and distribution. A CD for each report in pdf format has also been provided.

Should you have any questions regarding the enclosed information, please contact the Project Manager, Joseph Logan at 412-921-7231 or me at (412) 921-8415.

Very truly yours,

Roger A. Clark, Ph.D.
Program Manager

RAC/clm

Enclosure

cc: Joseph Logan – Tetra Tech Pittsburgh (1 copy)
file 112G02435
Vanessa Good – Tetra Tech Pittsburgh (1 copy)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
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In April, 2013, the Coast Guard removed additional soil from the Atwater site, replaced two monitoring wells and began quarterly groundwater monitoring, in order to demonstrate that unrestricted residential groundwater cleanup goals have been achieved. The results of the first

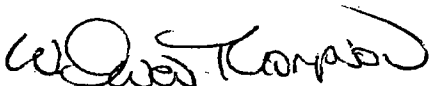
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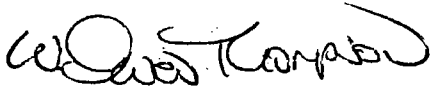
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Phone: (216) 902-6255
Fax: (216) 902-6277
Email: James.A.Cook@uscg.mil

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JUN 04 2013

United States Environmental Protection Agency
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Mr. Owen Thompson
77 West Jackson Boulevard
Chicago, IL 60604-3590

Dear Mr. Thompson:

Please find two copies of the Draft Final Removal Action Completion Report for the USCG Atwater facility in Detroit MI and a CD with two reports for the Ashtabula site for your review and comment. I have also enclosed a CD for the Final Removal Action Completion Report for USCG Thunder Bay Island Light Station, Alpena County, MI for your files..

If you have any questions or would like to discuss these documents in detail, please contact Mr. James Cook at (216) 902-6255.

Sincerely,

Gregory O. Carpenter
Chief, Environmental Compliance
By direction of the Commanding Officer

Enclosures

- (1) Draft Final Removal Action Completion Report (2 hard copies and 2 CDs): USCG facility, Detroit, MI, May 2013.
- (2) Final Removal Action Completion Report, USCG Thunder Bay Island Light Station, Alpena County, MI, May 2013.
- (3) Final Tier Evaluation Report, March 2006 and Final Closure Report- Impacted Soil North of the Boat House – November 2005 (1 CD)

Toxicologist Support Request Form

Date submitted July 7, 2013

Name W. Owen Thompson 

Phone # 6-4843

Site Name U.S. Coast Guard Detroit Atwater Site

Superfund Site-Specific Charge Account Number B5NC

Was there prior review on this site by a toxicologist? Yes ☐ No ☒

If so, who Keith Fusinski

Description/Scope of service requested: The Detroit Atwater site has had a Site Investigation and Cleanup. We are in the process of closing out the site with the Coast Guard, and we need to continue our consultation with Dr. Fusinski in regard to risk assessment issues and institutional controls.

Requested toxicologist K. Fusinski

Requested due date TBD

Do you want a typed written response? Yes ☐ No ☒

Do you anticipate the need for the toxicologist to attend a meeting(s) regarding these support services? Yes ☐ No ☒

If so, what type of meeting and when? _____

Assigned to _____ On (date) _____


Supervisor _____

Due Date _____ Assignment Completed _____

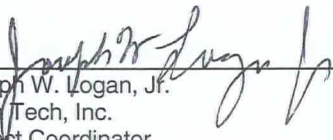
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Scott Vasko
Tetra Tech, Inc.
Geotechnical Engineer



Joseph W. Logan, Jr.
Tetra Tech, Inc.
Project Coordinator



Roger A. Clark, Ph.D.
Tetra Tech, Inc.
Program Manager

**Removal Action Completion
Report**

**USCG Atwater Facility
Detroit, Michigan**

Prepared for:
U.S. Coast Guard Civil Engineering Unit
Cleveland, Ohio

Prepared by:
Tetra Tech, Inc.

Consultant project number:
112G02435

Date: May 2014

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Table of Contents

Executive Summary	1
1. Introduction	1
1.1 Background	2
1.2 Chronology of Events	4
1.3 Public Participation and Response to Comments	4
2. Removal Action Activities	5
2.1 Pre-Removal Action Activities	6
2.1.1 Site Access	6
2.1.2 Site Preparation	6
2.1.2.1 Utility Clearance	6
2.1.2.2 Historic Preservation	7
2.1.2.3 Endangered Species Assessment	7
2.1.2.4 Soil Erosion and Sedimentation Control	7
2.1.3 Site Restriction and Security	8
2.2 Soil Removal	8
2.2.1 Field Screening Results	9
2.2.2 Cultural Artifacts	9
2.2.3 Soil Transport and Disposal Management	9
2.2.4 Shoring and Dewatering	10
2.2.5 Health and Safety	10
2.3 Confirmation Soil Sampling Results	10
2.3.1 Laboratory Results	10
2.3.2 Statistical Analysis of the Data	12
2.3.3 Data Validation	13
2.4 Decontamination Procedures	14
2.5 Site Restoration	14
2.6 Site Survey	14

Table of Contents

2.7	Groundwater Response Action	14
2.8	Fill Sample Analyses (City of Detroit)	15
3.	Conclusions	15
4.	References	17

Tables

Table 1a	Federal and State Chemical-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Guidance
Table 1b	Federal and State Location-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Guidance
Table 1c	Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Guidance
Table 2	Confirmation Soil Sample Field Screening Results
Table 3	Confirmation Sample Laboratory Analytical Results

Figures

Figure 1	Site Location
Figure 2	Site Layout
Figure 3	Confirmation Soil Sample Locations and Extent of Excavations Map
Figure 4	Confirmation Sampling Results Greater Than RAOs

Appendices

A	Public Participation Correspondence
B	Removal Waste Transportation and Disposal Documents
C	Removal and Restoration Activities Photographic Documentation
D	Laboratory Analytical Reports
E	Laboratory Validation Reports
F	Statistical Analysis of Data
G	Quarterly Groundwater Monitoring Reports
H	Fill Sample Report (City of Detroit)

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

Executive Summary

As provided in Executive Order 12580 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), the U.S. Coast Guard (USCG) is acting as the lead agency in implementing a Non-Time-Critical Removal Action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at the USCG Atwater Facility (Site) located in Detroit, Michigan (see Figures 1 and 2). The removal action was conducted, and this Removal Action Completion Report was prepared utilizing other supporting documents, including the Engineering Evaluation/Cost Analysis (EE/CA) (Tetra Tech, 2013a), the project-specific Quality Assurance Project Plan (QAPP) (Tetra Tech, 2010), the QAPP Addendum (Tetra Tech, 2011b), the Field Sampling Plan (FSP) (Tetra Tech, 2011a), and the Removal Action Work Plan (RAWP) (Tetra Tech, 2013b).

The removal action was conducted in accordance with the United States Environmental Protection Agency's (USEPA's) Guidance for Conducting Non-Time-Critical Removal Actions Under CERCLA (USEPA, December 1993) and Section 300.415 of the NCP to address soil and groundwater impacted by arsenic, lead, and polynuclear aromatic hydrocarbons (PAHs) at concentrations above site-specific removal action objectives (RAOs). The primary objective of the removal action was to protect public health and welfare and the environment, thereby facilitating the transfer of the Site from the federal inventory to be conveyed to the City of Detroit as part of the River Walk Redevelopment project. The RAOs for soil were identified by the USCG as the Michigan Department of Environmental Quality (MDEQ) risk-based screening levels (RBSLs) for residential exposure. Therefore, the applicable criteria were identified as the site-specific RAOs. Removal and off-site disposal of arsenic-, lead-, and PAH-impacted soil with concentrations greater than the RAOs were consistent with the requirements of Section 300.415 of the NCP and State requirements and eliminates unacceptable risks to human health, welfare, and the environment for current and anticipated future land uses. The shallow groundwater at the Site is an unlikely source of drinking water; therefore, active remediation of the groundwater was not recommended.

Between 2001 and 2012, site assessments and investigations were conducted at the Site. The results of the Phase I and Phase II Environmental Site Assessment soil sampling indicated that individual samples of benzo(a)pyrene, arsenic, lead, and selenium concentrations exceeded the MDEQ residential criteria. However, the average benzo(a)pyrene concentration was less than the MDEQ residential criteria, the concentration of arsenic was within the concentration range for soil in the United States

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

(as published by the USEPA), and the concentrations of lead and selenium were only slightly greater than the United States soil concentration range (TtNUS, 2002). The results of the soil sampling in another Phase II Environmental Site Assessment investigation indicated elevated PAHs and metals greater than MDEQ Groundwater Surface Water Interface and/or residential direct contact criteria (Enviro Matrix, 2006). The results of the Site Investigation indicated that soil remediation would be required to meet residential use criteria; however, groundwater remediation would not be required (Tetra Tech, 2012).

An EE/CA was prepared and submitted for MDEQ and public comment between February 11, 2013 and March 13, 2013. Plans [QAPP, QAPP Addendum, FSP, RAWP, Health and Safety Plan (HASP)] were prepared and approved prior to implementing the soil removal activities.

The soil removal activities at the USCG Atwater Facility occurred from April 8 through April 23, 2013. Soils were removed to depths of approximately 2.5 or 5 feet below ground surface (bgs). After the soil was excavated to the predetermined horizontal and vertical boundaries, field screening of soil was performed utilizing a hand-held, portable X-ray fluorescence (XRF) analyzer for arsenic and lead, and confirmation soil samples were collected from the excavations for laboratory analysis for PAHs, arsenic, and lead. Field screening results ranged from below 3 parts per million (ppm) to 135 ppm for arsenic and from 4 ppm to 1,172 ppm for lead. Three additional areas were excavated based on the laboratory test results greater than RAOs.

Approximately 2,440 tons or 1,480 cubic yards of non-hazardous impacted soil were excavated and transported to Veolia's Arbor Hills Landfill in Northville, Michigan for disposal. The excavations were backfilled with fine sand, covered with a layer of topsoil, and seeded with grass seed. Based on the laboratory analytical results of the samples collected from the excavation bottoms and sidewalls, there were several locations where confirmation sampling results were greater than RAOs. Four were sidewall locations along the property boundary, and these results are not representative of the soil on the site because the soil on one side of the samples is off-site and soil on the other side has been replaced with clean fill. Two other sidewall locations were adjacent to the slip and additional excavation was not attempted due to concerns about damaging the pier structure. Similar to the property boundary samples, these locations are not representative of the remaining soil. Four excavation bottom samples were left in place that had concentrations greater than the RAOs, but exposure to soil with elevated contaminant concentrations is limited because of the 2.5 feet of clean fill over these locations.

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

Because the contaminant concentrations were greater than the RAOs in some confirmation samples, a statistical analysis was performed on the data to determine the site exposure point concentrations (EPCs) for arsenic, lead, and benzo(a)pyrene equivalents (BaPEqs). The results of this analysis showed that EPCs are less than the RAOs, so the site meets the residential exposure limit requirements.

Four rounds of quarterly groundwater samples were collected after the excavation in 2013 and 2014. Samples were analyzed for PAHs and metals. All results were less than USEPA Maximum Contaminant Levels (MCLs) or MDEQ Residential Risk-Based Screening Levels (RBSLs) if no MCLs were available.

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

1. Introduction

This Removal Action Completion Report (RACR) was prepared by Tetra Tech on behalf of the United States Coast Guard (USCG) for the USCG Atwater Facility (Site) located in Detroit, Michigan.

The federal government currently owns the Site, which covers approximately 1.26 acres of harbor front land in downtown Detroit along the Detroit River, although only approximately 0.5 acre is land (see Figure 1 and Figure 2). No buildings currently exist on the site. The site was predominantly covered with asphalt and concrete with a small grassy area prior to the removal action. A fence with a locked gate is located along Atwater Street and a fence is located on the eastern and western sides of the property to restrict access to the site. The general site location is depicted in Figure 1 (Site Location Map). A site map of the Detroit Atwater Property is provided as Figure 2.

The removal action completed for the USCG Atwater Facility included the excavation and removal of arsenic-, lead-, and PAH-impacted surface soils associated with the former USCG Marine Safety Office (MSO) at the Site. The removal action was conducted in accordance with the United States Environmental Protection Agency's (USEPA's) Guidance for Conducting Non-Time-Critical Removal Actions Under CERCLA (Comprehensive Environmental Response, Compensation and Liability Act; USEPA, December 1993). The primary objective of the removal action was to protect public health and welfare and the environment, thereby facilitating the transfer of the Site from the federal inventory to be conveyed to the City of Detroit as part of the River Walk Redevelopment project. The remedial action objectives (RAOs) for soil were identified by the USCG as the Michigan Department of Environmental Quality (MDEQ) risk-based screening levels (RBSLs) for residential exposure. Therefore, the applicable criteria were identified as the site-specific RAOs. Removal and off-site disposal of arsenic-, lead-, and PAH-impacted soil with concentrations greater than the RAOs was consistent with the requirements of Section 300.415 of the NCP and State requirements and eliminates unacceptable risks to human health, welfare, and the environment for current and anticipated future land uses. The shallow groundwater at the Site is an unlikely source of drinking water; therefore, active remediation was not recommended for the groundwater.

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

1.1 Background

The USCG Atwater facility was the location of a former USCG Marine Safety Office (MSO) that consisted of two separate buildings: a maintenance building and a six-car garage. Located in the northwestern corner of the property, the maintenance building, constructed in 1932, was a two-story wood and brick structure. The six-car garage, located in the northeastern corner of the property and constructed in the 1930s, was a single-story wood and brick structure. The former maintenance building and garage were both demolished around 2004. Along the southern and western side of the property are boat slips, both of which remain. A boat house once enclosed the eastern slip. The general site location is depicted in Figure 1 (Site Location Map). A site map of the Detroit Atwater Property is provided as Figure 2.

The current surrounding areas of the Site are primarily commercial/industrial. The River Walk zoning overlay allows for certain residential, commercial, and recreational uses, while phasing out most industrial uses. Property located immediately to the east consists of a surface parking lot, to the west is a former cement facility (now open land), to the south is the Detroit River, and to the north is Atwater Street. The City of Detroit River Walk promenade will extend through the properties both to the east and to the west of the Site. The Site is relatively flat and slopes gently toward the Detroit River.

Federal and state government records were searched as a part of the Phase I ESA to determine if the Site had historical or cultural significance and to determine if there are any sensitive environmental areas of significance associated with the Site, and none were found, therefore no cultural resource survey was performed at the Site. Also, no threatened or endangered species assessment has been performed at the Site, although, because of the limited habitat, threatened and endangered species are unlikely to be present.

Listed below are brief summaries of the historical characterizations performed at the Site, including the 2002 Phase I and II Environmental Site Assessment, the 2006 Phase II Environmental Site Assessment, and the 2011 Site Investigation Report. These reports, which provide additional summary and analysis, are included as appendices in the Engineering Evaluation/Cost Analysis (EE/CA) (Tetra Tech, 2013a).

- Phase I and II Environmental Site Assessment for Detroit Atwater, Tetra Tech NUS, December 2002 – The results of the soil sampling in this investigation indicated that individual samples of benzo(a)pyrene, arsenic, lead, and selenium

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

exhibited concentrations in excess of the MDEQ residential criteria. However, the average benzo(a)pyrene concentration was less than the MDEQ residential criteria, the concentration of arsenic was within the concentration range for soil in the United States (as published by the USEPA), and the concentrations of lead and selenium were only slightly greater than the United States soil concentration range. Additionally, the land use at the Site is zoned as commercial and industrial. Therefore, it was concluded that there were no areas of significant environmental concern requiring rectification prior to transfer of the property, and there were no further recommendations at that time (TtNUS, 2002).

- Phase II Environmental Site Assessment, Enviro Matrix, July 2006 – The results of the soil sampling in this investigation indicated elevated PAHs and metals greater than MDEQ Groundwater Surface Water Interface and/or residential direct contact criteria (Enviro Matrix, 2006).
- Site Investigation Report for Atwater Facility, Tetra Tech, November 2012 –The results of the investigation indicated that soil remediation would be required to meet residential use criteria; however, groundwater remediation would not be required (Tetra Tech, 2012).

The EE/CA also identified applicable or relevant and appropriate requirements (ARARs) and to be considered (TBC) guidance, as required under Section 121 (d) of CERCLA, as amended by the 1986 Superfund Amendments and Reauthorization Act (SARA) and Section 300.400(g) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). A summary of ARARs for the Site is presented in Table 1.

The EE/CA identified removal of the impacted soil as the most effective, implementable, and cost-effective action for the Site. Following this decision, a Removal Action Work Plan (RAWP) was prepared by Tetra Tech (Tetra Tech, 2013b). The RAWP described the removal action activities and standard operating procedures (SOPs) and referenced the Quality Assurance Project Plan (QAPP) developed for the project.

A Field Sampling Plan (FSP) (Tetra Tech, 2011a) was prepared to provide procedures for field sample collection to characterize Site soils, including the nature and extent of lead, arsenic, and PAH impacts in soil. Additionally, the FSP presented procedures for collecting removal confirmation samples to verify the successful removal of the impacted soil.

1.2 Chronology of Events

The following is a brief chronology of events associated with the Site activities.

- May 2001: Tetra Tech conducted a Phase I Environmental Site Assessment for USCG.
- August 2001: Tetra Tech conducted a Phase II Environmental Site Assessment for USCG.
- April 2006: Enviro Matrix (EM) conducted a Phase I and Phase II ESA of the site for the Economic Development Corporation of the City of Detroit.
- March 2010: Quality Assurance Project Plan finalized.
- April 2011: Field Sampling Plan finalized.
- April 2011: Quality Assurance Project Plan Addendum finalized.
- April 2011 to June 2012: Tetra Tech conducted a Site Investigation for USCG.
- January 2013: Engineering Evaluation/Cost Analysis finalized.
- February 11, 2013 through March 13, 2013: Engineering Evaluation/Cost Analysis and Removal Action Work Plan made available for public review and comment.
- April 2013: Tetra Tech performed soil removal action and removal confirmation sampling at the Site for USCG.
- June 2013, September 2013, December 2013, and March 2014: Tetra Tech collected and analyzed groundwater samples.

1.3 Public Participation and Response to Comments

In accordance with the NCP, a Public Notice (Appendix A) was given by the USCG announcing that the EE/CA and RAWP for the proposed removal action at the USCG Atwater Facility was available for review and comment for a period of 30 days. The purpose of the public participation requirement of the NCP is to promote active

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

communication between the communities affected by the release at the Site and the USCG.

The public notice regarding the proposed soil removal action was published in the Detroit Free Press from February 10, 2013 through February 16, 2013. The EE/CA and the RAWP were made available for public viewing. A written notification of the availability of the documents was provided to the City of Detroit, who is interested in acquiring the property. The documents were posted electronically on the USCG District Nine News website (<http://www.d9.uscgnews.com/go/doctype/4007/117211>). Each of the final documents was also reproduced in full hardcopy and provided to the Main Branch and the Skillman Branch of the Detroit Public Library in Detroit, Michigan for public viewing. A copy of the EE/CA and RAWP were also submitted to the MDEQ and the City of Detroit for comment. The MDEQ and City of Detroit did not provide any comments on the documents.

The USCG received no significant comments from the community during the 30-day public comment period. Therefore, consistent with provisions [40 Code of Federal Regulations (CFR) 300.415] of the NCP, the USCG proceeded with implementing the removal action as planned.

2. Removal Action Activities

The removal action was conducted in accordance with the USEPA's *Guidance for Conducting Non-Time Critical Removal Actions Under CERCLA* (USEPA, December 1993). The primary objective of the removal action was to protect public health and welfare and the environment, thereby facilitating the transfer of the Site to the City of Detroit. As discussed in the EE/CA and RAWP, the USCG selected RAOs for contaminants of concern (COCs) in soil based on MDEQ RBSLs for residential exposure as shown in the following table:

Soil COC	RAO, mg/kg
Arsenic	7.6
Benzo(a)pyrene equivalents (BaPEqs)	2.0
Lead	400

The removal action activities at the Site occurred from April 8 through April 23, 2013.

2.1 Pre-Removal Action Activities

2.1.1 Site Access

Prior to commencing with the removal action activities, appropriate permits and applications were obtained and prepared. The permits and applications listed below were obtained and prepared, as required (see Appendix B):

- MDEQ Waste and Hazardous Materials Division Generator Site Identification No. MIK112091844.
- Advanced Disposal Arbor Hills Landfill in Northville, Michigan, Non-Hazardous Waste Approval No. MI-687-140328-AH5296-515.
- Usher Oil Company, Detroit, Michigan, Non-Hazardous Waste Approval No. 041713-W.

The USCG Atwater Facility removal action activities were restricted by the adjacent property boundaries, fences along the property boundaries, and the presence of the Detroit River immediately south of the Site.

2.1.2 Site Preparation

Prior to beginning the soil removal activities, the extent of each excavation was surveyed and marked with stakes and paint. Work zones were identified, as well as staging areas for vehicles and equipment. A plan for directly loading and unloading trucks was determined, and traffic patterns were identified.

Surface debris located at the Site was removed and disposed off-site. The surface debris consisted primarily of large rubber tires, scrap metal objects, large concrete pieces, old lumber, and an old parts washer. Concrete debris was disposed of through Recycled Aggregates. Steel debris was disposed of through Winston Brothers of Detroit Michigan. Tires were disposed of at Waddles Tire in Brownstown, MI. Miscellaneous debris was disposed of at Advanced Disposal in Northville, MI.

2.1.2.1 Utility Clearance

In accordance with State law, MISSDIG was contacted on March 27, 2013 for utility clearance, and ticket number B30860211 was issued for the Site. Site plans and

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

sketches from previous utility clearances associated with site investigations were reviewed to determine the potential for underground utilities at the Site to be affected by the soil removal.

2.1.2.2 Historic Preservation

Federal and state government records, including those of the National Register of Historic Places and the Michigan State Historic Preservation Office, were searched as a part of the Phase I ESA to determine if the Site had historical or cultural significance. The subject property was not identified as a historical or cultural site (TtNUS, 2002). One such historical/cultural site was identified within one-quarter mile of the Site, and several sites were identified within one-half mile and 1 mile of the Site. Prior to demolishing the former maintenance building and six-car garage, the USCG contacted the State of Michigan Department of History, Arts, and Libraries, whose Environmental Review Coordinator provided a letter on January 23, 2004 stating that "no historic properties are affected within the area of potential effects of this undertaking;" this letter is included as an Appendix in the EE/CA (Tetra Tech, 2013a). The USCG determined that the Site had no culturally significant resources. No other evaluation was performed, and the proposed removal action was not expected to affect significant cultural or historical resources.

2.1.2.3 Endangered Species Assessment

As described in the EE/CA, federal and state government records were searched as a part of the Phase I ESA to determine if there were any sensitive environmental areas of significance associated with the Site, including Federal Lands Data (Federal or state wilderness area, preserves, sanctuaries, or refuges; wild and scenic rivers; fish and wildlife; threatened or endangered species; etc.) (TtNUS, 2002). No sensitive environmental areas were identified within 0.125- or 1-mile of the subject site. Because of the limited habitat, no threatened or endangered species are likely to exist at the site, and the removal action would not adversely affect potential habitat for threatened or endangered species. Therefore, the proposed removal action was not expected to pose a risk to potential habitat for threatened or endangered species.

2.1.2.4 Soil Erosion and Sedimentation Control

The Site is relatively flat and is predominantly covered with asphalt and concrete with a small grassy area. Soil erosion and sedimentation control measures applied at the Site included setting up hay bales along the perimeter of the site in accordance with

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

MDEQ Water Bureau Soil Erosion and Sedimentation Control Program, *Soil Erosion and Sedimentation Control Training Manual* (MDEQ, 2005) and Wayne County Department of Public Services, Land Resource Management Division, *Permit Procedures for Soil Erosion and Sedimentation Control* (Wayne County, 2010).

2.1.3 Site Restriction and Security

Existing fences and gates were deemed sufficient security features for securing the Site during the removal action. This consisted of a fence with a locked gate located along Atwater Street and fences located on the eastern and western sides of the property to restrict Site access.

2.2 Soil Removal

Excavation and removal of the contaminated soil was conducted at the USCG Atwater Facility from April 8 through April 17, 2013. The areas of the Site where soil removal was performed and the excavation depths in each removal area are shown on Figure 3. The total area excavated was approximately 9,200 square feet to depths of 2.5 to 5 feet below ground surface (bgs) and to a depth of 7 feet bgs at one location, for a total of 1,480 cubic yards of soil from 10 separate excavation areas.

The composition of soils encountered during the excavation activities generally consisted of clay or silty clay, although some limited sand, gravel, and silt were also encountered. Most of this material is believed to have originated as fill. The excavation activities were conducted using a backhoe and an excavator.

The northeast side of the large excavation was within 2 to 3 feet of the property line to avoid damage to the fence and to avoid infringing on the adjacent property. A concrete footer was uncovered along part of property line which also prevented excavation beyond the property line. Similarly, the southwest side of the large excavation was limited to within 15 feet of the pier wall to avoid potential damage to the pier structure.

After the anticipated volume of impacted soil was removed from the excavation area, soil samples were collected from the excavation bottom and sidewalls in these areas for field analysis of lead and arsenic utilizing a hand-held, portable X-ray fluorescence (XRF) analyzer as described in the RAWP to help define the extent of the excavations. The XRF field screening results are discussed further in Section 2.2.1. These soil samples were subsequently sent to the laboratory for lead, arsenic, and PAH analyses.

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

Approximately 2,440 tons of non-hazardous contaminated soil were excavated from the property and transported to a licensed facility for disposal. All excavated material and wastes were removed from the Site and disposed by April 17, 2013. Details regarding the transport and disposal of the wastes are discussed in 2.2.3.

2.2.1 Field Screening Results

Field screening results ranged from below 3 ppm to 135 ppm for arsenic and from 4 ppm to 1,172 ppm for lead. Subsequent laboratory testing of the collected samples showed that for lead, the XRF field screening results were very similar to the laboratory results. However, for arsenic, the XRF field screening results were significantly greater than the laboratory results. The samples collected from the excavation sidewalls were obtained at a depth of approximately 0 to 2 feet bgs for the shallow (2.5 feet) excavations and at a depth of approximately 3 to 5 feet bgs for the deep (5 feet) excavations. The excavation bottom samples were obtained at an approximate depth of 0 to 2 feet below the bottom of the excavation. Confirmation soil sample field screening results are presented in Table 2, and locations are depicted on Figure 3.

2.2.2 Cultural Artifacts

There were no potential historically significant artifacts unearthed during the excavation activities.

2.2.3 Soil Transport and Disposal Management

The impacted soil was live-loaded into trucks during the removal action to minimize the need for stockpiling soil. Approximately 2,440 tons of non-hazardous soil was transported by the removal contractor to Veolia's Arbor Hills Landfill in Northville, Michigan for disposal. Trucks were placarded in accordance with DOT regulations. The trucks followed a prescribed transportation route to the disposal facility.

The USCG reviewed, approved, and signed all waste profiles prior to shipping the soil from the Site in accordance with RCRA and DOT regulations. Manifests were signed by the Tetra Tech on-site representative on behalf of the USCG. The oversight contractor, Tetra Tech, obtained weight tickets, tare/gross weight slips, and manifests from each truckload of non-hazardous soil transported from the Site. Certificates of disposal were obtained from the disposal facilities. Copies of all transport and disposal documentation are provided in Appendix B and will be kept on file by the USCG.

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

Site photographs documenting the soil removal are included in Appendix C.

2.2.4 Shoring and Dewatering

The depths of most of the excavations were 2.5 to 5 feet bgs and did not extend below the groundwater table which was typically found 3 to 5 feet bgs; therefore, shoring was not necessary. One excavation (Area No. 4) was to a depth of approximately 2 feet below the water table (7 feet bgs). However, the excavation was not close to any structures, so no shoring was needed. Primarily due to rainfall, approximately 21,000 gallons of water were collected from the excavations for off-site disposal to Usher Oil Company in Detroit, MI.

2.2.5 Health and Safety

Field investigation and removal activities were conducted in general accordance with the Health and Safety Plan (HASP) contained in Appendix D of the RAWP. Specifically, the HASP addresses the activities related to soil excavation activities, XRF screening, and soil sampling. Level D personal protective equipment (PPE) consisting of steel toe boots, hard hats, nitrile gloves, and safety goggles) were used for the field activities. Excavation areas were blocked off by Site perimeter fencing to prevent access by trespassers to the excavation. Dust suppression (watering) of the excavated soil was not required because dust generation was limited by soil moisture and rainfall during the excavation activities.

The XRF screening instrument was used in general accordance with the manufacturer's directions to prevent exposure to radiation. The XRF device was registered with the Michigan Department of Licensing and Regulatory Affairs Radiation Safety Section and was calibrated in accordance to the manufactures instructions prior to daily use. Nitrile gloves were used during soil sampling to prevent exposure to the contaminated soil.

2.3 Confirmation Soil Sampling Results

2.3.1 Laboratory Results

As prescribed in Section 2.2 of the RAWP, confirmation samples were collected following the soil removal action using the "biased" sampling approach as described in the Section 4.0 of the FSP (Tetra Tech, 2011a). A total of 46 soil samples were collected from the excavated areas, which included 37 excavation sidewall samples

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

and 9 excavation bottom samples. The samples were submitted on the same day generated to Trimatrix Laboratories, Inc. located in Grand Rapids, Michigan for analysis of total arsenic, lead, and PAHs in accordance with the QAPP and QAPP Addendum. The excavation laboratory analytical results are presented in Table 3. The laboratory analytical reports are provided in Appendix D.

The total lead laboratory analytical results for the sidewall samples ranged from 2.7 mg/kg to 1,800 mg/kg, and the bottom samples ranged from 13 mg/kg to 720 mg/kg. A 5,900 mg/kg lead bottom sample result (DA-SB-220) is believed to be an anomaly, because the XRF field screening results from this location were less than 30 ppm, and the highest laboratory lead result outside of this sample was 1,800 mg/kg. An aliquot of the sample was re-analyzed, and the lead result was 13 mg/kg which is consistent with the XRF measurements.

The total arsenic laboratory analytical results for the sidewall samples ranged from 2.3 mg/kg to 38 mg/kg, and the bottom samples ranged from 4.2 mg/kg to 18 mg/kg. The laboratory analytical results for BaPEqs for the sidewall samples ranged from 0.014 mg/kg to 7.9 mg/kg, and the bottom samples ranged from 0.13 mg/kg to 7.9 mg/kg.

Based on the laboratory results from some of the original sidewall samples that were greater than RAOs (DASB-209, DASB-217, DASB-218, and DASB-243), three additional areas were excavated. The additional excavation areas, shown on Figure 3 as areas A, B, and C, were each excavated to the same depth as the adjacent excavation. A sidewall confirmation sample was collected from each additional excavation and submitted for laboratory analysis. One of these confirmation samples exceeded the RAO for lead, and one other sample exceeded the RAOs for arsenic and lead.

The laboratory analytical results for lead were greater than the RAO of 400 mg/kg for six samples (excluding samples that were removed by the additional excavation). Similarly, the laboratory analytical results for arsenic were greater than the RAO of 7.6 mg/kg for eight samples, and the laboratory analytical results for BaPEqs were greater than the RAO of 2.0 mg/kg for 3 samples. Sample locations where laboratory analytical results exceeded RAOs are shown on Figure 4.

Three samples of the excavation backfill material were collected and submitted for laboratory analysis for arsenic and lead. One sample of the topsoil material was collected and submitted for laboratory analysis for arsenic, lead, and PAHs. All

samples exhibited lead, arsenic, and BaPEq concentrations that were less than their respective RAOs.

The methods and procedures for collecting soil samples were followed as outlined in the QAPP (Tetra Tech, 2010) and the QAPP Addendum (Tetra Tech, 2011b). Soil samples were collected and cooled to 6 degrees Celsius (°C). In addition to the confirmation samples collected, appropriate quality assurance/quality control (QA/QC) samples were collected and submitted to Trimatrix Laboratories, Inc. located in Grand Rapids, Michigan for analysis of total arsenic, lead, and PAHs as outlined in the QAPP and the QAPP Addendum. QA/QC samples included five field duplicate samples and four matrix spike/matrix spike duplicate samples for analysis.

2.3.2 Statistical Analysis of the Data

Because COC concentrations in some confirmation samples were greater than RAOs, exposure point concentrations (EPCs) were calculated based on data for post-remediation surface soil and subsurface soil samples. Surface soil was defined as the 0-2 feet bgs) soil interval and subsurface soil was defined as the soil interval greater than 2 feet bgs (but above the saturated zone). The dataset evaluated is comprised of the data reported for pre-remediation soil samples and confirmation soil samples not excavated during the removal action. The samples from the property line were also excluded from the calculations because these are not representative of the soil at the site. For purposes of human health risk assessment, an EPC is defined as the concentration in an environmental medium to which a human receptor is exposed. With the exception of lead, the EPC is typically the calculated 95 percent upper confidence limit (UCL) on the arithmetic mean. Per USEPA guidance, the arithmetic mean (versus the 95% UCL) is typically used as the EPC when conducting a human health risk assessment for lead. EPCs were calculated using USEPA's ProUCL version 4.1.01 software. The sample detection limit was used as an input for non-detected results in the EPC calculations.

EPCs were calculated for arsenic, lead, and BaPEqs. The results were compared to the RAOs, but none of the EPCs calculated for the COCs were greater than the RAOs. See Appendix F for details of the calculations. The EPCs and RAOs are summarized below.

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

COC	EPC FOR SURFACE SOIL, mg/kg	EPC FOR SUBSURFACE SOIL, mg/kg	RAO, mg/kg
Arsenic	6.8	6.9	7.6
Lead	129	93.9	400
BaPEqs	0.68	1.7	2

2.3.3 Data Validation

The laboratory analytical reports were reviewed and validated in accordance with the QAPP for the USCG Atwater Facility removal action, the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (October 2002), and Region II SOPs that apply to SW-846 Method 7420, laboratory control limits, and professional judgment. As indicated in the RAWP (Tetra Tech, 2013b), Level 3 analytical reporting was requested for all removal confirmation samples. The laboratory's overall system performance and data quality were acceptable and within the guidelines specified in the analytical method. The laboratory data validation reports are included in Appendix E.

The temperatures of two coolers were greater than 6°C. The first cooler contained samples primarily collected on April 9, 2013 and some samples collected on April 10, 2013, and the second cooler contained samples collected on April 10, 2013. Both coolers were picked up on April 10, 2013 and logged in at the laboratory on April 10, 2013. In the first cooler, the temperature blank was 4.3 °C and the 3-sample average temperature was 6.2 °C. For the second cooler, the temperature blank was 8.9 °C and the 3-sample average temperature was 7.6 °C.

All samples were placed on ice at the time of collection, but because the cooler is opened and closed frequently during sample collection to add samples after they are collected and to remove samples for XRF measurement, the sample cooling is not efficient. Based on the times that the last samples were collected and the coolers finally closed and the times of the log-in at the lab, the samples in the first cooler were undisturbed on ice for over 24 hours, but the samples in the second cooler were undisturbed on ice for about 6 hours. The relatively short period of time is not sufficient to cool the soil samples to the target temperature, but the samples were being stored under conditions to maximize the preservation of the samples.

Note that the samples were being analyzed for PAHs which are extremely persistent in the environment in non-aqueous matrices. The PAHs would not be expected to

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

degrade significantly over such as short period of time during sample storage. Therefore, the results of the samples in the subject coolers can be used for evaluation of the site. The results were flagged with a "J" qualifier.

2.4 Decontamination Procedures

The equipment utilized by the subcontractor was clean upon arrival at the site. Prior to demobilizing the equipment from the site, soil and sand were removed from the equipment using dry methods. All samples were collected using disposable equipment (such as disposable plastic trowels), so no decontamination water was generated.

2.5 Site Restoration

Restoration of the excavated areas at the Site occurred from April 17 through April 23, 2013. The backfill material consisted of approximately 2 to 4.5 feet of sand and 6 inches of topsoil. Grass seed was then applied and raked into the topsoil. Any areas that do not show vegetative growth following a reasonable amount of time will be reseeded. Photo documentation of site restoration activities is included in Appendix D.

2.6 Site Survey

Following soil removal activities, the locations of the confirmation samples were surveyed using a global positioning system (GPS) unit. The final excavation limits were consistent with the proposed excavation boundaries; no post-excavation survey was performed.

2.7 Groundwater Response Action

In the vicinity of monitoring well MW02 (Excavation Area No. 4) (see Figure 3), the depth of the excavation was extended to 7 feet bgs, approximately 2 feet below the approximate water table as measured in the well and the top of clay in that area, to remove contaminants in the smear zone in order to reduce organic contaminant concentrations in the groundwater. Groundwater was not initially encountered during the excavation, however, rain water and possibly groundwater accumulated in the excavation while waiting for sample analysis to be completed.

New monitoring wells were installed after the removal action to replace MW-01 and MW-02, which were abandoned prior to the excavation.

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

Four rounds of quarterly groundwater samples were collected after the excavation in June 2013, September 2013, December 2013, and March 2014. Samples were analyzed for PAHs and Michigan-10 metals (total and dissolved). Results were compared to USEPA MCLs or MDEQ Residential RBSLs if no MCLs were available. All results were less than these criteria. The groundwater monitoring reports are included in Appendix G.

2.8 Fill Sample Analyses (City of Detroit)

The City of Detroit required a broad analysis of the fill. Four composite samples (two of the fill and two of the top soil) were collected by the City and analyzed for volatile organic compounds, semivolatile organic compounds, Michigan-10 metals, and polychlorinated biphenyls. The results were compared to MDEQ Residential Direct Contact Criteria. All results were less than the criteria. A copy of the City of Detroit report is included in Appendix H.

3. Conclusions

Lead-, arsenic-, and PAH-impacted soil were encountered in the soils at the USCG Atwater Facility presumably resulting from historic activities at the Site. A removal action was conducted in accordance with the USEPA's Guidance for Conducting Non-Time-Critical Removal Actions Under CERCLA (USEPA, December 1993). The primary objective of the removal action was to protect public health and welfare and the environment, thereby facilitating the transfer of the subject property to the City of Detroit. RAOs of 400 mg/kg for lead, 7.6 mg/kg for arsenic, and 2.0 mg/kg for BaPEqs were selected for the Site; these RAOs are protective of the anticipated future land use. The removal action activities at the Site occurred from April 8 through April 23, 2013.

The removal of the impacted soils at the USCG Atwater Facility occurred from April 8 through April 17, 2013. Approximately 2,440 tons or 1,480 cubic yards of non-hazardous contaminated soil were excavated from the property and transported to Veolia's Arbor Hills Landfill in Northville, Michigan for disposal. The excavations were backfilled and seeded. Soil samples were collected from the excavations bottoms and sidewalls for laboratory analysis of lead, arsenic, and PAHs. Laboratory analytical results of the soil samples indicated six samples with lead concentrations greater than the lead RAO of 400 mg/kg, eight samples with arsenic concentrations greater than the

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

arsenic RAO of 7.6 mg/kg, and three samples with BaPEq concentrations greater than the BaPEqs RAO of 2.0 mg/kg. Sample locations where laboratory analytical results exceeded RAOs are shown on Figure 4.

The USCG, acting as the lead agency and in compliance with the NCP and CERCLA 120 (h), has removed impacted soils at the USCG Atwater Facility to the extent practicable as outlined in the EE/CA and RAWP. Based on the laboratory analytical results of the samples collected from the excavation bottoms and sidewalls, there were several locations where confirmation sampling results were greater than RAOs. Four were sidewall locations along the property boundary, and these results are not representative of the soil on the site because the soil on one side of the sample is off-site and soil on the other side has been replaced with clean fill. Two other sidewall locations were adjacent to the slip and additional excavation was not attempted due to concerns about damaging the pier structure. Similar to the property boundary samples, these locations are not representative of the remaining soil. Four excavation bottom samples were left in place that had concentrations greater than the RAOs, but exposure is limited because 2.5 feet of clean fill was placed over these locations.

Because of the contaminant concentrations that were greater than the RAOs were detected in confirmation samples, a statistical analysis was performed on the data to determine the site exposure concentrations for arsenic, lead, and BaPEqs. The results of this analysis showed that EPCs less than the RAOs, so the site meets the residential exposure limit requirements.

The results of the analyses of the four quarterly groundwater samples were all less than MCLs or MDEQ Residential RBSLs if MCLs were not available. Therefore, the groundwater meets residential exposure limit requirements.

The results of the analysis of the fill samples were less than the MDEQ Residential Direct Contract Criteria which meets the requirements of the City of Detroit.

The current and anticipated future use of this property is recreational. The soil removal action was protective of public health and welfare and the environment for this anticipated land use. Therefore, the USCG Atwater Facility is adequate for transfer based on compliance with the above CERCLA requirements.

Removal Action Completion Report

USCG Atwater Facility
Detroit, Michigan

4. References

Enviro Matrix, 2006. Phase II Environmental Site Assessment. Prepared for:
Economic Development Corporation of the City of Detroit. July 2006.

MDEQ (Michigan Department of Environmental Quality), 2007. *Operational Memorandum No. 2, Attachment 5. Collection of Samples for Comparison to Generic Criteria*. July 5, 2007.

MDEQ, 2011. Soil: Residential, Part 201 Generic Cleanup Criteria and Screening Levels. http://www.michigan.gov/documents/deq/deq-rrd-OpMemo_1-Attachment1Table2SoilResidential_283553_7.pdf Developed under the authority of the Natural Resources and Environmental Protection Act, 1994 PA 451 as amended. March 25, 2011.

MDEQ, 2011. Groundwater: Residential and Commercial, Part 201 Generic Cleanup Criteria and Screening Levels. http://www.michigan.gov/documents/deq/deq-rrd-OpMemo_1-Attachment1Table1GW_283547_7.pdf Developed under the authority of the Natural Resources and Environmental Protection Act, 1994 PA 451 as amended. March 25, 2011.

TtNUS (Tetra Tech NUS, Inc.), 2002. Phase I and II Environmental Site Assessment for Detroit Atwater - Revised. December.

Tetra Tech (Tetra Tech, Inc.), 2010. Quality Assurance Project Plan. USCG Atwater Facility. March.

Tetra Tech, 2011a. Field Sampling Plan (Rev 3.0). USCG Atwater Facility. April.

Tetra Tech, 2011b. Quality Assurance Project Plan Addendum. USCG Atwater Facility. April.

Tetra Tech, 2012. Site Investigation Report for Atwater Facility. November.

Tetra Tech, 2013a. Engineering Evaluation/Cost Analysis. USCG Atwater Facility. November.

Tetra Tech, 2013b. Removal Action Work Plan. USCG Atwater Facility. November.

**Removal Action
Completion Report**

USCG Atwater Facility
Detroit, Michigan

United States Environmental Protection Agency. 1993. *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA*. EPA540-R-93-057. August 1993.

United States Environmental Protection Agency, Office of Solid Waste and Emergency Response. 1994. *Memorandum: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities*. From Elliott. Laws, Assistant Administrator. To: Regional Administrators I-X. EPA/540/F-94/043. August 1994.

National Oil and Hazardous Substances Pollution Contingency Plan. 40 Code of Federal Regulations (CFR) Part 300. 1994





Table 1a. Potential Federal and State Chemical-Specific

Constituent of Concern and Media	Authority	Assessment, Criteria, or Guidance
PAHs, Arsenic, and/or Lead in Soil	Federal Advisories, Guidance, and Training Material.	NA Methodology for assessing risks associated with non-
		NA Assess risks associated with lead.
		NA Potential carcinogenic hazard caused by exposure to incremental cancer risk resulting from exposure to
		NA Resulting from exposure to non-carcinogens in site media. Were caused by exposure to contaminants.
		NA Calculate potential carcinogenic risks caused by exposure to
		NA Used to calculate potential carcinogenic risks to children
	State Requirements and/or Criteria.	Natural with cleanup criteria. See Table 2 in the MAC Rules for use category. Only Residential exposure values are relevant as amer
	State Advisories, Guidance, and Training Material.	NA Prepared by the MDEQ to provide guidance on satisfying the it defines land-use categories and provides updated and chments to the operational memorandum provide technical and algorithms used to calculate the criteria.
		NA Prepared by the MDEQ to provide guidance on target oil leaching methods; sample preservation; sampling, ples for comparison to generic Criteria

Table 1a. Potential Federal and State Chemical-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Guidance, United States Coast Guard Atwater Facility, Detroit, Michigan

Constituent of Concern and Media	Authority	Act	Statute, Regulation, Administrative Code, or Guidance Document	Status	Synopsis of Requirement, Criteria, or Guidance
PAHs, Arsenic, and/or Lead in Air	Federal Regulatory Requirement and/or Criteria.	Clean Air Act (CAA)	42 USC 7409 42 USC 7409 40 CFR 50.12 and Appendix G to Part 50. 40 CFR 50.12 Appendix G to Part 50	Applicable.	These rules establish emissions limits for lead and describe test methods and procedures to determine emissions. The national primary and secondary ambient air quality standards for lead and its compounds, measured as elemental lead by a reference method based on Appendix G to 40 CFR 50, or by an equivalent method, are 1.5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), maximum arithmetic mean averaged over a calendar quarter. There are no ambient air quality standards for PAHs and arsenic.
	Federal Advisories, Guidance, and Training Material.	NA	None.	None.	None.
	State Regulatory Requirement and/or Criteria.	NA	Michigan Air Pollution Control Rules Part 2. Air Use Approval Exemptions R336.1290. Part 2 Air Use Approval Exemptions	Applicable.	Establishes exemption from permit to install for emission units with limited emissions. Establishes thresholds and limits by pollutant type and recordkeeping requirements.
	State Advisories and Guidance.	NA	None.	None.	None.
PAHs, Arsenic, and/or Lead in Water (Groundwater and Surface Water)	Federal Regulatory Requirement and/or Criteria.	Safe Drinking Water Act (SDWA) Act 399 of 1976 (SDWA)	42 USC Chapter 6A Public Health Section 300g. 42 USC 300g National Primary Drinking Water Standards-Maximum Contaminant Levels (MCLs) (40 CFR 141). 40 CFR 141	Relevant and Appropriate.	MCLs have been promulgated for a number of common organic and inorganic contaminants. These levels regulate the concentration of contaminants in public drinking water supplies based on health effects and technical capabilities. MCLs may also be considered relevant and appropriate for groundwater aquifers potentially used for drinking water sources. The MCL for benzo(a)pyrene is 0.0002 milligrams per liter (mg/L). The MCL for arsenic in drinking water is 0.010 mg/L. The MCL for lead in drinking water is 0.015 mg/L.
	State Regulatory Requirement.	NREPA, Act 451 of 1994	Michigan Compiled Laws Chapter 324, Part 201. MAC Rules, Groundwater Clean-up Criteria. R299.5706, R299.5708, R299.5709, R299.5710, R299.5712, R299.5716, R299.5730, R299.5732, and R299.5744. MAC Part 201 Rules	Relevant and Appropriate.	See Table1 in the MAC Part 201 Rules for Generic Criteria and Screening Levels. These values were only used in absence of MCLs. Only the residential exposure values are relevant and appropriate.

Table 1a. Potential Federal and State Chemical-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Guidance, United States Coast Guard Atwater Facility, Detroit, Michigan

Constituent of Concern and Media	Authority	Act	Statute, Regulation, Administrative Code, or Guidance Document	Status	Synopsis of Requirement, Criteria, or Guidance
PAHs, Arsenic, and/or Lead in Water (Groundwater and Surface Water) Continued	State Advisories, Guidance, and Training Material.	NA	RRD Operational Memorandum Number 1 (Part 201 Cleanup Criteria). MDEQ RRD Op Memo 1	To be Considered.	This document is a non-promulgated memorandum prepared by the MDEQ to provide guidance on satisfying the cleanup criteria requirements under NREPA Part 201; it defines land-use categories and provides updated and interim cleanup criteria and screening levels. The attachments to the operational memorandum provide technical support documentation for the chemical/physical data and algorithms used to calculate the criteria.
		NA	MDEQ RRD Operational Memorandum Number 2 (Part 201 Sampling and Analysis Guidance). MDEQ RRD Op Memo 2	To be Considered.	This document is a non-promulgated memorandum prepared by the MDEQ to provide guidance on target detection limits and designated analytical methods; soil leaching methods; sample preservation; sampling, and handling and holding times; and the collection of samples for comparison to generic criteria.

Notes:
NA Not Applicable.

Table 1b. Potential Location-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Requirements, United States Coast Guard Atwater Facility, Detroit, Michigan

Location	Authority	Act	Statute, Regulation, Administrative Code, or Guidance Document	Status	Synopsis of Requirement, Criteria, or Guidance
Within or directly adjacent to a protected coastal area or wetland; Federally owned property; Registered National Historic Site; Within or directly adjacent to a wildlife refuge; Within or directly adjacent to Habitat for Endangered or Threatened Species; Within or directly adjacent to stop-over for migratory birds.	Federal Regulatory Requirement.	None.	None.	None.	None.
	Federal Advisories, Guidance, and Training Material.	None.	None.	None.	None.
Activities near Great Lakes Shorelines	State Regulatory Requirement and/or Criteria.- Land and Water Management Division	NREPA	Part 323, Shorelands Protection and Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). (MCL 324.32301, et seq.) Michigan Administrative Code: R 281.21, et. seq. Formerly Know as Act 245 (1970)	Relevant and Appropriate	Regulates the alteration of the soil and vegetation within a great Lakes shoreland environmental area without a permit. Regulates activities in high-risk erosion areas and flood risk areas (administered by local units of government through the federal flood insurance program) as well as environmental areas. May be applied to environmental sites of contamination that may affect the protection and management of Great Lake shoreland areas.
Within or directly adjacent to Habitat for Endangered or Threatened Species		NREPA.	Michigan Compiled Law 324 Part 365 Endangered Species Protection Programs; cooperative agreements (Section 324.36504). Part 365 Section 324.36504 MAC R322.2.1 through 322.73.1 R322.2.1 - 322.73.1	Relevant and Appropriate.	The department may establish programs, including acquisition of land or aquatic habitat, as is considered necessary for the management of endangered or threatened species. The rules list the specific land and aquatic habit. No endangered or threatened species are likely to inhabit the site.
		NREPA.	Michigan Compiled Law 324 Part 365 Endangered Species Protection – Prohibitions; exceptions (Section 324.36505). Part 365 Section 324.36505	Relevant and Appropriate.	Actions taken or funded involving the transport and possession of endangered or threatened species are unlawful.
	State Advisories, Guidance, and Training Material.	None.	None.	None.	None.

Table 1c. Potential Action-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Requirements, United States Coast Guard Atwater Facility, Detroit, Michigan

Action	Authority	Act or Statute	Regulation, Administrative Code, or Guidance Document	Status	Synopsis
Excavation of contaminated soil and monitoring or remediation related to impacts to groundwater.	Federal Regulatory Requirement.	Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the 1986 Superfund Amendments and Reauthorization Act (SARA).	Federal Facilities 42 United States Code (USC) 9620 42 USC 9620 Reporting Hazardous Substance Activity When Selling or Transferring Federal Real Property (Title 40 Code of Federal Regulations [CFR] 373) 40 CFR 373	Applicable.	These rules require notifications related to hazardous substances prior to the sale or transfer of real property owned by the federal government. This is applicable if a property with residual contamination is transferred.
		CERCLA as amended by the 1986 SARA.	National Contingency Plan (42 USC 9605). 42 USC 9605 National Contingency Plan (40 CFR Section 300.400 through 300.415). 40 CFR 300	Applicable.	These promulgated rules require performing a Removal Site Evaluation and a Removal Action including preparing certain documents (a Quality Assurance Project Plan [QAPP], a field sampling plan [FSP], and an engineering evaluation and cost assessment [EE/CA]), considering federal and state ARARs, soliciting community involvement, and providing notifications prior to the removal action.
		Executive Order 12580 of January 23, 1987, Superfund Implementation.	Executive Order 12580- Superfund Implementation Executive Order 12580	Applicable.	The Executive Order provides federal agencies, including the United States Coast Guard, the authority to carry out their CERCLA responsibilities under the National Contingency Plan as a lead agency.
		Resource Conservation and Recovery Act of 1976 (RCRA).	Identification and Listing of Hazardous Waste 42 USC 6921. 42 USC 6921 Identification and Listing of Hazardous Waste (40 CFR 261). 40 CFR 261 Land Disposal Restrictions 40 Part 268. 40 CFR 268	Applicable.	These regulations establish requirements for identifying any hazardous wastes that may be generated in the course of the Removal action. No wastes are anticipated to be hazardous.
		RCRA.	Standards Applicable to Generators of Hazardous Waste 42 USC 6922. 42 USC 6922 Standards Applicable to Generators of Hazardous Waste (40 CFR 262). 40 CFR 262 Standards Applicable to Transporters of Hazardous Waste (40 CFR 263). 40 CFR 263	Applicable.	These regulations establish requirements for the on-site management of any hazardous wastes that may be generated in the course of the removal action. No wastes are anticipated to be hazardous.
		RCRA.	Standards Applicable to Generators of Hazardous Waste. (42 USC 6923). 42 USC 6921 Standards Applicable to Transporters of Hazardous Waste (40 CFR 263). 40 CFR 263 Standards for Universal Waste Management (40 CFR 273). 40 CFR 273	Applicable.	These regulations establish requirements for the off-site transportation of any hazardous wastes that may be generated in the course of the removal action. No wastes are anticipated to be hazardous.

Table 1c. Potential Action-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Requirements, United States Coast Guard Atwater Facility, Detroit, Michigan

Action	Authority	Act or Statute	Regulation, Administrative Code, or Guidance Document	Status	Synopsis
Excavation of contaminated soil and monitoring or remediation related to impacts to groundwater.		Hazardous Materials Transport Act (HMTA) as Amended by the Hazardous Materials Transport Uniform Safety Act of 1990.	<p>Transportation of Hazardous Materials (49 USC 5101-5127).</p> <p>49 USC Chapter 51</p> <p>Hazardous Materials Regulations - General Information, Regulations and Definitions (49 CFR 171).</p> <p>49 CFR 171</p> <p>Hazardous Materials Regulations - Hazardous materials table, special provisions, hazardous materials communications, emergency response information, and training requirements (49 CFR 172).</p> <p>49 CFR 172</p> <p>Hazardous Materials Regulations Shippers – General Requirements for Shipments and Packages (49 CFR 173) 49 CFR 173</p>	Applicable.	These regulations establish requirements for the off-site transportation of any hazardous wastes that may be generated in the course of the remedial action. No wastes are anticipated to be hazardous.
		Clean Air Act of 1970.	<p>National primary and secondary ambient air quality standards 42 USC 7409.</p> <p>42 USC 7409</p> <p>National Primary and Secondary Ambient Air Quality Standards (40 CFR 50)</p> <p>40 CFR 50</p>	Applicable.	Engineering controls are required to reduce emissions associated with excavation and transportation, as needed, to maintain ambient air quality standards.
		Clean Water Act (CWA).	<p>Water Pollution Prevention and Control, Standards and Enforcement, 33 USC 1313 through 1314.</p> <p>USC 33</p> <p>National Pollution Discharge Elimination System (NPDES) (40 CFR 122 – 125).</p> <p>40 CFR Parts 122-125</p>	Applicable.	This regulation establishes requirements for storm-water discharges associated with industrial activity, including waste disposal areas. Soil remediation may require consideration of storm-water regulations.
		Occupational Safety & Health Administration Act (OSHA) of 1970.	<p>Occupational Safety & Health Administration Act (Public Law 91-596 84 STAT. 1590).</p> <p>PL 91-596 OSHA</p> <p>Occupational Safety & Health Administration (29 CFR 1910).</p> <p>29 CFR 1910</p>	Applicable.	These regulations specify requirements for health and safety protection for workers potentially exposed to contaminants during hazardous waste site remediation.
		OSHA.	<p>Occupational Safety & Health Administration Act (Public Law 91-596 84 STAT. 1590).</p> <p>PL 91-596 OSHA ACT</p> <p>Occupational Safety & Health Administration (29 CFR 1926).</p> <p>29 CFR 1926</p>	Applicable.	These regulations specify requirements for health and safety protection for workers at construction sites.

Table 1c. Potential Action-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Requirements, United States Coast Guard Atwater Facility, Detroit, Michigan

Action	Authority	Act or Statute	Regulation, Administrative Code, or Guidance Document	Status	Synopsis
Excavation of contaminated soil and monitoring or remediation related to impacts to groundwater.	State Regulatory Requirement.	Natural Resources Environmental Protection Act of 1994, Public Act 451 as amended (NREPA).	Soil Conservation, Erosion, and Sedimentation Control Part 91 Michigan Administrative Code (MAC) R323.1702(1), R323.1709 (2), R323.1709 (3), R323.1709 (4), R323.1709 (5). Part 91	Relevant and Appropriate.	These regulations specify requirements for earth change actions including erosion and sedimentation control measures that will effectively reduce accelerated soil erosion and resulting sedimentation. These regulations require the construction of temporary or permanent control measures to remove sediment from run-off water before it leaves the site.
		NREPA.	Michigan Compiled Law 324, Part 55 Section 324.5524 Air Pollution Control. MCL 324 Part 55 MAC Air Pollution Control Rules 336.1370 through 336.1374. Michigan Air Pollution Control Rules	Relevant and Appropriate.	These promulgated statutes and rules are associated with fugitive dust emissions. Dust from excavations and handling will be controlled using measures such as water sprays.
		NREPA.	Michigan Compiled Law 324, Part 111 Hazardous Waste Management Sections 324.11138 and 324.11132a. Section 324.11138 Section 324.11132a MAC R299.9208, R299.9209, R299.9212, R299.9216, R299.9217, R299.9301- 9308, R299.9311, R299.9401-9413. Part 111 Rules	Relevant and Appropriate.	Defines hazardous waste and establishes requirements for hazardous waste generators, transporters, and treatment/storage/disposal facilities. Regulates the generation, transport, treatment, storage, and disposal of hazardous wastes from site remediation. Regulates closure, post-closure, and corrective action for hazardous waste treatment, storage, and disposal facilities. Remedial action may generate hazardous waste and involve management of hazardous waste. May be applied to off-site disposal of hazardous waste. Used for determining how and in what type of disposal facility contaminated media may be removed to. May be applied to construction and operation of on-site treatment, storage or disposal units relative to requirements for characterization and handling of hazardous waste. Applied to the excavation of certain contaminated media. Note: The State of Michigan has authorization to administer Federal RCRA Subtitle C in the State. No wastes are anticipated to be hazardous.
		NREPA.	Michigan Compiled Law 324, Part 121 Sections 324.12103, 324.12109. Part 121 Section 324.12103 Part 121 Section 324.12109	Relevant and Appropriate.	These are promulgated statutes and rules associated with liquid industrial waste management, such as decontamination fluid.

Table 1c. Potential Action-Specific Applicable or Relevant and Appropriate Requirements and To Be Considered Requirements, United States Coast Guard Atwater Facility, Detroit, Michigan

Action	Authority	Act or Statute	Regulation, Administrative Code, or Guidance Document	Status	Synopsis
Excavation of contaminated soil and monitoring or remediation related to impacts to groundwater.	Federal Advisories and Guidance.	None.	None.	NA.	NA.
	State Advisories and Guidance.	NA.	MDEQ Water Bureau Soil Erosion and Sedimentation (SES) Control Program, Soil Erosion and Sedimentation Training Manual SES Training Manual	To Be Considered.	This document includes non-promulgated guidance material prepared to assist in the design and construction of erosion and sedimentation control measures.
		NA.	MDEQ Remediation and Redevelopment Division (RRD) Operational Memorandum Number 2 (Part 201 Sampling and Analysis Guidance) MDEQ RRD Op Memo 2	To Be Considered.	This document is a non-promulgated memorandum prepared by the MDEQ to provide guidance on target detection limits and designated analytical methods; soil leaching methods; sample preservation, sampling, and handling and holding times; and the collection of samples for comparison to generic criteria.
			MDEQ RRD Operational Memorandum Number 4 (Site Characterization and Remediation Verification) MDEQ RRD Op Memo 4	To Be Considered.	This document is a non-promulgated memorandum prepared by the MDEQ to provide direction for generating data for facility characterization (nature, extent, and impact of a release or threat of a release) and monitoring to support remedial decisions and assessing exposure pathways for compliance with cleanup criteria. The sampling strategies identified in this document represent acceptable approaches and ranges of appropriate assumptions that are intended to support consistent exercise of professional judgment in a manner that produces satisfactory outcomes. Alternative approaches may be used if the person proposing the alternative demonstrates that the approach meets all requirements of the statute and rules.

Notes:
NA Not Applicable.

TABLE 2

CONFIRMATION SOIL SAMPLE FIELD SCREENING RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 1 OF 4

Sample Location	Sample Identification	Excavation Area Location	XRF Analysis Date	Analyte	1st XRF Reading (ppm)	2nd XRF Reading (ppm)	3rd XRF Reading (ppm)	XRF Limit of Detection (ppm)	Automatically Generated XRF Average (ppm)	Fixed-Base Laboratory Analysis (mg/kg)	COMMENTS
DA-SB-201	DA-SB-201	Area 1	4/11/2013	Lead	132	49	27	4	69	66	dk grey silty clay - wet
				Arsenic	11	10	7	3	9	6.7	
DA-SB-202	DA-SB-202	Area 1	4/11/2013	Lead	30	23	40	4	31	39	dk grey silty clay - wet
				Arsenic	7	6	7	3	7	6.3	
DA-SB-203	DA-SB-203	Area 1	4/11/2013	Lead	23	18	25	4	22	29	dk grey silty clay - wet
				Arsenic	7	12	11	3	10	5.2	
DA-SB-204	DA-SB-204	Area 1	4/11/2013	Lead	37	104	29	4	57	40	dk grey silty clay - wet
				Arsenic	6	26	7	3	13	6.2	
DA-SB-205	DA-SB-205	Area 1	4/11/2013	Lead	35	27	20	4	27	21	dk grey silty clay - wet
				Arsenic	9	8	11	3	9	6.1	
DA-SB-206	DA-SB-206	Area 1	4/11/2013	Lead	450	642	297	4	463	410	dk grey silty clay - wet
				Arsenic	27	21	13	3	20	8.9	
DA-SB-207	DA-SB-207	Area 1	4/11/2013	Lead	141	140	90	4	124	99	dk grey silty clay - wet
				Arsenic	17	11	10	3	13	6.1	
DA-SB-208	DA-SB-208	Area 2	4/14/2013	Lead	297	140	165	4	201	340	grey, rocky silty clay
				Arsenic	15	22	14	3	17	7.7	
DA-SB-209	DA-SB-209	Area 2	4/14/2013	Lead	536	581	621	4	579	510	grey, silty clay
				Arsenic	20	22	32	3	25	11	
DA-SB-210	DA-SB-210	Area 2	4/14/2013	Lead	5.4	5.5	5.5	4	5	2.7	brn, tan sand (fill around drain pipe)
				Arsenic	4.5	4.5	4.5	3	5	2.3	
DA-SB-211	DA-SB-211	Area 2	4/14/2013	Lead	96	24	423	4	181	43	duplicate, grey clay
				Arsenic	12	9	15	3	12	5.8	
DA-SB-212	DA-SB-212	Area 2	4/14/2013	Lead	111	206	112	4	143	220	black silty soil, some clay
				Arsenic	17	13	15	3	15	5.4	
DA-SB-213	DA-SS-213-0002	Area 3	4/10/2013	Lead	446	715	605	4	589	720	black rocky soil w someclay
				Arsenic	19	37	34	3	30	8.3	
DA-SB-214	DA-SS-214-0002	Area 3	4/10/2013	Lead	332	336	219	4	296	290	black rocky soil w someclay
				Arsenic	23	16	14	3	18	8.7	

TABLE 2

CONFIRMATION SOIL SAMPLE FIELD SCREENING RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 2 OF 4

Sample Location	Sample Identification	Excavation Area Location	XRF Analysis Date	Analyte	1st XRF Reading (ppm)	2nd XRF Reading (ppm)	3rd XRF Reading (ppm)	XRF Limit of Detection (ppm)	Automatically Generated XRF Average (ppm)	Fixed-Base Laboratory Analysis (mg/kg)	COMMENTS
DA-SB-215	DA-SS-215-0002	Area 3	4/10/2013	Lead	1172	426	441	4	680	370	black rocky soil w someclay
				Arsenic	53	62	46	3	54	7.2	
DA-SB-216	DA-SS-216-0002	Area 3	4/10/2013	Lead	250	416	202	4	289	180	black rocky soil w someclay
				Arsenic	26	16	30	3	24	6.8	
DA-SB-217	DA-SS-217-0002	Area 3	4/10/2013	Lead	285	647	672	4	535	530	black rocky soil w someclay
				Arsenic	37	42	40	3	40	9.0	
DA-SB-218	DA-SS-218-0002	Area 3	4/10/2013	Lead	578	648	675	4	634	660	black rocky soil w someclay
				Arsenic	28	23	34	3	28	9.2	
DA-SB-219	DA-SS-219-0002	Area 3	4/10/2013	Lead	300	361	206	4	289	270	hard blue-grey clay
				Arsenic	31	25	25	3	27	6.0	
DA-SB-220	DA-SS-220-0002	Area 3	4/10/2013	Lead	20	26	19	4	22	5900/13	hard blue-grey clay
				Arsenic	7	7	7	3	7	18	
DA-SB-221	DA-SS-221-0002	Area 3	4/10/2013	Lead	107	58	83	4	83	35	hard blue-grey clay
				Arsenic	14	11	17	3	14	5.1	
DA-SB-222	DA-SS-222-0002	Area 3	4/10/2013	Lead	977	794	26	4	599	720	hard blue-grey clay
				Arsenic	78	22	5.9	3	35	5.9	
DA-SB-222	DA-SS-222-0002	Area 3	4/10/2013	Lead	609	505	1042	4	719	720	Duplicate read SB222 after thoroughly mixing the sample
				Arsenic	21	21	68	3	37	5.9	
DA-SB-223	DA-SS-223-0002	Area 3	4/10/2013	Lead	27	23	62	4	37	16	hard blue-grey clay
				Arsenic	9	8	10	3	9	4.2	
DA-SB-224	DA-SB-224	Area 4	4/11/2013	Lead	17	51	42	4	37	63	hard blue-grey clay
				Arsenic	6	11	13	3	10	5.1	
DA-SB-225	DA-SB-225	Area 4	4/11/2013	Lead	22	56	54	4	44	31	hard blue-grey clay
				Arsenic	5.9	10	10	3	9	2.6	
DA-SB-226	DA-SB-226	Area 4	4/11/2013	Lead	25	28	27	4	27	35	hard blue-grey clay
				Arsenic	8	6	5.8	3	7	4.2	
DA-SB-227	DA-SB-227	Area 4	4/11/2013	Lead	79	96	123	4	99	72	hard blue-grey clay
				Arsenic	10	9	12	3	10	5.9	

TABLE 2

CONFIRMATION SOIL SAMPLE FIELD SCREENING RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 3 OF 4

Sample Location	Sample Identification	Excavation Area Location	XRF Analysis Date	Analyte	1st XRF Reading (ppm)	2nd XRF Reading (ppm)	3rd XRF Reading (ppm)	XRF Limit of Detection (ppm)	Automatically Generated XRF Average (ppm)	Fixed-Base Laboratory Analysis (mg/kg)	COMMENTS
DA-SB-228	DA-SB-228	Area 5	4/11/2013	Lead	8	8	14	4	10	6.9	blue-gray clay
				Arsenic	6	6	11	3	8	5.1	
DA-SB-229	DA-SB-229	Area 5	4/11/2013	Lead	11	7	12	4	10	6.5	blue-gray clay
				Arsenic	9	5.6	6	3	7	6.1	
DA-SB-230	DA-SB-230	Area 5	4/11/2013	Lead	8	18	7	4	11	6.9	blue-gray clay
				Arsenic	8.7	7	5.4	3	7	4.3	
DA-SB-231	DA-SB-231	Area 5	4/11/2013	Lead	17	31	19	4	22	7.5	blue-gray clay
				Arsenic	7	9	6	3	7	5.1	
DA-SB-232	DA-SB-232	Area 6	4/14/2013	Lead	4.6	5.8	8.8	4	6	7.0	grey hardclay
				Arsenic	3.6	4.6	7	3	5	6.1	
DA-SB-233	DA-SB-233	Area 6	4/14/2013	Lead	7.1	19	17	4	14	16	grey hard clay
				Arsenic	7	7	10	3	8	5.8	
DA-SB-234	DA-SB-234	Area 6	4/14/2013	Lead	145	151	130	4	142	220	black silty soil
				Arsenic	8	9	8	3	8	6.6	
DA-SB-235	DA-SB-235	Area 6	4/14/2013	Lead	1113	1162	703	4	993	1800	rocky, black silty soil
				Arsenic	134	135	66	3	112	38	
DA-SB-236	DA-SB-236	Area 6	4/14/2013	Lead	24	31	13	4	23	26	lt grey crushedshell
				Arsenic	5.7	5.8	7.8	3	6	4.9	
DA-SB-237	DA-SB-237	Area 6	4/14/2013	Lead	15	9	178	4	67	31	grey hard clay
				Arsenic	12	6	11	3	10	2.5	
DA-SB-238	DA-SB-238-0305	Area 7	4/9/2013	Lead	62	36	52	4	50	56	black soil with clay and rocky
				Arsenic	ND	ND	ND	3	2	4.5	
DA-SB-239	DA-SB-239-0305	Area 7	4/9/2013	Lead	21	18	22	4	20	13	black soil with clay and rocky
				Arsenic	17	ND	12	3	10	5.5	
DA-SB-240	DA-SB-240-0305	Area 7	4/9/2013	Lead	276	146	179	4	200	120	black soil with clay and rocky
				Arsenic	30	15	13	3	19	7.2	
DA-SB-241	DA-SB-241-0305	Area 7	4/9/2013	Lead	631	198	246	4	358	320	black soil with clay and rocky
				Arsenic	22	25	ND	3	16	7.7	

TABLE 2

CONFIRMATION SOIL SAMPLE FIELD SCREENING RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 4 OF 4

Sample Location	Sample Identification	Excavation Area Location	XRF Analysis Date	Analyte	1st XRF Reading (ppm)	2nd XRF Reading (ppm)	3rd XRF Reading (ppm)	XRF Limit of Detection (ppm)	Automatically Generated XRF Average (ppm)	Fixed-Base Laboratory Analysis (mg/kg)	COMMENTS
DA-SB-242	DA-SB-242-0305	Area 7	4/9/2013	Lead	14	18	23	4	18	18	Extremely strong petroleum-like odor.
				Arsenic	11	14	12	3	12	7.0	
DA-SB-243	DA-SB-243-0305	Area 7	4/9/2013	Lead	44	45	144	4	78	38	black soil with clay and rocky
				Arsenic	9	12	29	3	17	6.2	

Field screening of confirmation soil samples was performed with an X-ray fluorescence (XRF) analyzer for arsenic and lead.

ND = Not Detected.

ppm = Parts per Million.

mg/kg = Milligrams per Kilogram.

TABLE 3

CONFIRMATION SAMPLE LABORATORY ANALYTICAL RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 1 OF 9

LOCATION SAMPLE IDENTIFICATION SAMPLE DATE TOP DEPTH, FEET BGS BOTTOM DEPTH, FEET BGS NOTES	Removal Action Objective	DASB201 DASS201-0002 20130411	DASB202 DASS202-0002 20130411	DASB203			DASB204 DASS204-0002 20130411	DASB205 DASS205-0002 20130411
				DASS203-0002 20130411	DASS203-0002-AVG 20130411	DASS203-0002-D 20130411		
		0	0	0	0	0	0	0
		2	2	2	2	2	2	2
METALS (MG/KG)								
ARSENIC	7.6	6.7	6.3	5.2	5.25	5.3	6.2	6.1
LEAD	400	66	39	29	29	29	40	21
POLYCYCLIC AROMATIC HYDROCARBONS (MG/KG)								
BAP EQUIVALENT	2	0.32	0.94	0.28	0.62	0.96	0.25	1.0
2-METHYLNAPHTHALENE	NC	0.1 U	0.037 J	0.1 U	0.1 U	0.1 U	0.11 U	0.081 J
ACENAPHTHENE	NC	0.1 U	0.26	0.1 U	0.064 J	0.064 J	0.11 U	0.23
ACENAPHTHYLENE	NC	0.1 U	0.11 U	0.1 U	0.046 J	0.046 J	0.11 U	0.1 U
ANTHRACENE	NC	0.055 J	0.68	0.093 J	0.2815	0.47 J	0.078 J	0.51
BENZO(A)ANTHRACENE	NC	0.27	0.82	0.22 J	0.57	0.92 J	0.18	0.89
BENZO(A)PYRENE	NC	0.23	0.64	0.2 J	0.415	0.63 J	0.18	0.74
BENZO(B)FLUORANTHENE	NC	0.28	0.76	0.23 J	0.52	0.81 J	0.23	0.95
BENZO(G,H,I)PERYLENE	NC	0.11	0.27	0.097 J	0.1985	0.3 J	0.11 J	0.35
BENZO(K)FLUORANTHENE	NC	0.18	0.46	0.14 J	0.27	0.4 J	0.11	0.5
CHRYSENE	NC	0.26	0.91	0.24 J	0.515	0.79 J	0.22	0.84
DIBENZO(A,H)ANTHRACENE	NC	0.026 J	0.11	0.022 J	0.071	0.12	0.021 J	0.084 J
FLUORANTHENE	NC	0.42	1.6	0.41 J	1.055	1.7 J	0.31	1.5
FLUORENE	NC	0.028 J	0.37	0.1 U	0.085	0.12	0.11 U	0.19
INDENO(1,2,3-CD)PYRENE	NC	0.095 J	0.26	0.081 J	0.1855	0.29 J	0.088 J	0.32
NAPHTHALENE	NC	0.1 U	0.052 J	0.1 U	0.1 U	0.1 U	0.11 U	0.42
PHENANTHRENE	NC	0.28	1.9	0.21 J	0.855	1.5 J	0.17	1.5
PYRENE	NC	0.49	1.6	0.44 J	1.17	1.9 J	0.36	1.8

Shaded cell indicates concentration greater than Removal Action Objective.

BGS - Below ground surface.

D - Duplicate sample.

J - Estimated concentration.

MG/KG - Milligrams per kilogram.

NA - Not analyzed.

NC - No criterion (Removal Action Objective).

U - Below detection limit at detection limit shown.

TABLE 3

CONFIRMATION SAMPLE LABORATORY ANALYTICAL RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 2 OF 9

LOCATION SAMPLE IDENTIFICATION SAMPLE DATE TOP DEPTH, FEET BGS BOTTOM DEPTH, FEET BGS NOTES	Removal Action Objective	DASB206 DASS206-0002 20130411 2.5 4.5	DASB207 DASS207-0002 20130411 2.5 4.5	DASB208 DASS208-0002 20130412 0 2	DASB209 DASS209-0002 20130412 0 2 EXCAVATED	DASB210 DASS210-0002 20130412 0 2	DASB211 DASS211-0002 20130412 2.5 4.5	DASB212 DASS212-0002 20130412 2.5 4.5
METALS (MG/KG)								
ARSENIC	7.6	8.9	6.1	7.7	11	2.3	5.8	5.4
LEAD	400	410	99	340	510	2.7	43	220
POLYCYCLIC AROMATIC HYDROCARBONS (MG/KG)								
BAP EQUIVALENT	2	0.39	0.28	0.38	0.85	0.019 U	0.13	0.37
2-METHYLNAPHTHALENE	NC	0.11 U	0.0067 J	0.096 U	0.034 J	0.019 U	0.099 U	0.013 J
ACENAPHTHENE	NC	0.035 J	0.016 J	0.033 J	0.079	0.019 U	0.099 U	0.21
ACENAPHTHYLENE	NC	0.11 U	0.014 J	0.096 U	0.017 J	0.019 U	0.099 U	0.013 J
ANTHRACENE	NC	0.18	0.057	0.089 J	0.18	0.019 U	0.099 U	0.1
BENZO(A)ANTHRACENE	NC	0.29	0.26	0.32	0.63	0.019 U	0.052 J	0.36
BENZO(A)PYRENE	NC	0.26	0.2	0.27	0.57	0.019 U	0.068 J	0.26
BENZO(B)FLUORANTHENE	NC	0.35	0.23	0.32	0.65	0.019 U	0.049 J	0.33
BENZO(G,H,I)PERYLENE	NC	0.13	0.093	0.16	0.34	0.019 U	0.039 J	0.091
BENZO(K)FLUORANTHENE	NC	0.21	0.12	0.14	0.38	0.019 U	0.039 J	0.17
CHRYSENE	NC	0.35	0.22	0.29	0.65	0.019 U	0.052 J	0.35
DIBENZO(A,H)ANTHRACENE	NC	0.055 J	0.025	0.031 J	0.12	0.019 U	0.099 U	0.027
FLUORANTHENE	NC	0.49	0.31	0.43	0.99	0.019 U	0.07 J	0.51
FLUORENE	NC	0.057 J	0.02	0.033 J	0.068	0.019 U	0.099 U	0.14
INDENO(1,2,3-CD)PYRENE	NC	0.1 J	0.089	0.12	0.31	0.019 U	0.039 J	0.11
NAPHTHALENE	NC	0.11 U	0.02 U	0.096 U	0.03 J	0.019 U	0.099 U	0.024
PHENANTHRENE	NC	0.41	0.2	0.32	0.84	0.019 U	0.049 J	0.45
PYRENE	NC	0.57	0.41	0.61	1.1	0.019 U	0.11	0.7

Shaded cell indicates concentration greater than Removal Action (

BGS - Below ground surface.

D - Duplicate sample.

J - Estimated concentration.

MG/KG - Milligrams per kilogram.

NA - Not analyzed.

NC - No criterion (Removal Action Objective).

U - Below detection limit at detection limit shown.

TABLE 3

CONFIRMATION SAMPLE LABORATORY ANALYTICAL RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 3 OF 9

LOCATION SAMPLE IDENTIFICATION SAMPLE DATE TOP DEPTH, FEET BGS BOTTOM DEPTH, FEET BGS NOTES	Removal Action Objective	DASB213 DASS213-0002 20130410 0 2 PROPERTY LINE	DASB214 DASS214-0002 20130410 0 2 PROPERTY LINE	DASB215 DASS215-0002 20130410 0 2 EXCAVATED	DASB216 DASS216-0002 20130410 0 2 PIER WALL	DASB217 DASS217-0002 20130410 0 2 EXCAVATED	DASB218 DASS218-0002 20130410 0 2 EXCAVATED	DASB219 DASS219-0002 20130410 2.5 4.5
METALS (MG/KG)								
ARSENIC	7.6	8.3	8.7	7.2	6.8	9	9.2	6
LEAD	400	720	290	370	180	530	660	270
POLYCYCLIC AROMATIC HYDROCARBONS (MG/KG)								
BAP EQUIVALENT	2	1.8	0.60	0.41	0.35	2.9	2.5	7.9
2-METHYLNAPHTHALENE	NC	0.19 UJ	0.21 UJ	0.19 UJ	0.21 UJ	0.96 UJ	0.2 UJ	0.42 UJ
ACENAPHTHENE	NC	0.14 J	0.21 UJ	0.19 UJ	0.21 UJ	0.96 UJ	0.27 J	0.92 J
ACENAPHTHYLENE	NC	0.069 J	0.21 UJ	0.19 UJ	0.21 UJ	0.96 UJ	0.2 UJ	0.42 UJ
ANTHRACENE	NC	0.44 J	0.091 J	0.17 J	0.21 UJ	0.48 J	0.92 J	3.5 J
BENZO(A)ANTHRACENE	NC	1.1 J	0.31 J	0.24 J	0.18 J	2 J	2 J	7 J
BENZO(A)PYRENE	NC	1.2 J	0.38 J	0.25 J	0.2 J	2.1 J	1.8 J	5.6 J
BENZO(B)FLUORANTHENE	NC	1.3 J	0.58 J	0.26 J	0.17 J	2.2 J	2.1 J	6.1 J
BENZO(G,H,I)PERYLENE	NC	0.69 J	0.32 J	0.1 J	0.12 J	1.4 J	1.1 J	2.9 J
BENZO(K)FLUORANTHENE	NC	0.9 J	0.4 J	0.21 J	0.15 J	1.2 J	1.1 J	4.7 J
CHRYSENE	NC	1.2 J	0.46 J	0.3 J	0.2 J	2.1 J	2.1 J	6 J
DIBENZO(A,H)ANTHRACENE	NC	0.25 J	0.1 J	0.19 UJ	0.21 UJ	0.28 J	0.22 J	0.64 J
FLUORANTHENE	NC	2.5 J	0.47 J	0.36 J	0.27 J	3.7 J	3.9 J	13 J
FLUORENE	NC	0.12 J	0.21 UJ	0.19 UJ	0.21 UJ	0.96 UJ	0.25 J	1.4 J
INDENO(1,2,3-CD)PYRENE	NC	0.61 J	0.25 J	0.19 UJ	0.091 J	1 J	0.9 J	2.7 J
NAPHTHALENE	NC	0.085 J	0.21 UJ	0.19 UJ	0.21 UJ	0.96 UJ	0.2 UJ	0.42 UJ
PHENANTHRENE	NC	1.9 J	0.26 J	0.24 J	0.11 J	1.8 J	3 J	8.9 J
PYRENE	NC	2.4 J	0.73 J	0.53 J	0.35 J	4.9 J	5 J	14 J

Shaded cell indicates concentration greater than Removal Action (

BGS - Below ground surface.

D - Duplicate sample.

J - Estimated concentration.

MG/KG - Milligrams per kilogram.

NA - Not analyzed.

NC - No criterion (Removal Action Objective).

U - Below detection limit at detection limit shown.

TABLE 3

CONFIRMATION SAMPLE LABORATORY ANALYTICAL RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 4 OF 9

LOCATION SAMPLE IDENTIFICATION SAMPLE DATE TOP DEPTH, FEET BGS BOTTOM DEPTH, FEET BGS NOTES	Removal Action Objective	DASB220	DASB221	DASB222			DASB223	DASB224
		DASS220-0002 20130410	DASS221-0002 20130410	DASS222-0002 20130410	DASS222-0002-AVG 20130410	DASS222-0002-D 20130410	DASS223-0002 20130410	DASS224-0507 20130411
		2.5 4.5	2.5 4.5	2.5 4.5	2.5 4.5	2.5 4.5	2.5 4.5	5 7
METALS (MG/KG)								
ARSENIC	7.6	18	5.1	5.9 J	5.35	4.8	4.2	5.1
LEAD	400	13	35	720	595	470	16	63
POLYCYCLIC AROMATIC HYDROCARBONS (MG/KG)								
BAP EQUIVALENT	2	0.38	0.15	1.00	1.5	2.0	1.8	0.046
2-METHYLNAPHTHALENE	NC	0.0068 J	0.019 UJ	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.02 U
ACENAPHTHENE	NC	0.061 J	0.013 J	0.2 UJ	0.155	0.21 J	0.2 UJ	0.015 J
ACENAPHTHYLENE	NC	0.0068 J	0.0054 J	0.2 UJ	0.058 J	0.058 J	0.2 UJ	0.02 U
ANTHRACENE	NC	0.25 J	0.036 J	0.12 J	0.325	0.53 J	0.22 J	0.014 J
BENZO(A)ANTHRACENE	NC	0.38 J	0.11 J	0.6 J	1	1.4 J	1.4 J	0.041
BENZO(A)PYRENE	NC	0.27 J	0.1 J	0.72 J	1.06	1.4 J	1.3 J	0.033
BENZO(B)FLUORANTHENE	NC	0.27 J	0.11 J	0.78 J	1.19	1.6 J	1.6 J	0.039
BENZO(G,H,I)PERYLENE	NC	0.13 J	0.066 J	0.44 J	0.65	0.86 J	0.7 J	0.02
BENZO(K)FLUORANTHENE	NC	0.16 J	0.084 J	0.45 J	0.685	0.92 J	0.79 J	0.019 J
CHRYSENE	NC	0.29 J	0.11 J	0.62 J	0.91	1.2 J	1.5 J	0.039
DIBENZO(A,H)ANTHRACENE	NC	0.031 J	0.017 J	0.097 J	0.1435	0.19 J	0.16 J	0.0037 J
FLUORANTHENE	NC	0.61 J	0.19 J	0.89 J	1.595	2.3 J	2.4 J	0.067
FLUORENE	NC	0.091 J	0.013 J	0.2 UJ	0.19 J	0.19 J	0.2 UJ	0.0069 J
INDENO(1,2,3-CD)PYRENE	NC	0.12 J	0.051 J	0.37 J	0.565	0.76 J	0.63 J	0.013 J
NAPHTHALENE	NC	0.019 UJ	0.019 UJ	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.02 U
PHENANTHRENE	NC	0.65 J	0.13 J	0.37 J	1.035	1.7 J	0.21 J	0.058
PYRENE	NC	0.71 J	0.22 J	1.1 J	1.85	2.6 J	2.4 J	0.081

Shaded cell indicates concentration greater than Removal Action (

BGS - Below ground surface.

D - Duplicate sample.

J - Estimated concentration.

MG/KG - Milligrams per kilogram.

NA - Not analyzed.

NC - No criterion (Removal Action Objective).

U - Below detection limit at detection limit shown.

TABLE 3

CONFIRMATION SAMPLE LABORATORY ANALYTICAL RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 5 OF 9

LOCATION SAMPLE IDENTIFICATION SAMPLE DATE TOP DEPTH, FEET BGS BOTTOM DEPTH, FEET BGS NOTES	Removal Action Objective	DASB225 DASB225-0507 20130411	DASB226 DASB226-0507 20130411	DASB227 DASB227-0507 20130411	DASB228 DASB228-0305 20130411	DASB229		
						DASB229-0305 20130411	DASB229-0305-AVG 20130411	DASB229-0305-D 20130412
		5	5	5	3	3	3	3
		7	7	7	5	5	5	5
METALS (MG/KG)								
ARSENIC	7.6	2.6	4.2	5.9	5.1	6.1	5.85	5.6
LEAD	400	31	35	72	6.9	6.5	6.8	7.1
POLYCYCLIC AROMATIC HYDROCARBONS (MG/KG)								
BAP EQUIVALENT	2	0.090	0.43	0.25	0.021	0.014	0.014	0.019 U
2-METHYLNAPHTHALENE	NC	0.021 U	0.11 U	0.013 J	0.019 U	0.018 U	0.0185 U	0.019 U
ACENAPHTHENE	NC	0.19	0.15	0.034	0.019 U	0.018 U	0.0185 U	0.019 U
ACENAPHTHYLENE	NC	0.0061 J	0.11 U	0.012 J	0.019 U	0.018 U	0.0185 U	0.019 U
ANTHRACENE	NC	0.037	0.32	0.064 J	0.019 U	0.018 U	0.0185 U	0.019 U
BENZO(A)ANTHRACENE	NC	0.067	0.41	0.21 J	0.0036 J	0.0038 J	0.0038 J	0.019 U
BENZO(A)PYRENE	NC	0.066	0.3	0.18	0.019 U	0.0034 J	0.0034 J	0.019 U
BENZO(B)FLUORANTHENE	NC	0.071	0.34	0.22 J	0.0032 J	0.0038 J	0.0038 J	0.019 U
BENZO(G,H,I)PERYLENE	NC	0.034	0.16	0.084	0.0036 J	0.0042 J	0.0043	0.0044 J
BENZO(K)FLUORANTHENE	NC	0.037	0.17	0.12	0.019 U	0.018 U	0.0185 U	0.019 U
CHRYSENE	NC	0.063	0.35	0.19 J	0.0052 J	0.018 U	0.0185 U	0.019 U
DIBENZO(A,H)ANTHRACENE	NC	0.007 J	0.038 J	0.019 J	0.019 U	0.018 U	0.0185 U	0.019 U
FLUORANTHENE	NC	0.13	0.98	0.33 J	0.0068 J	0.0061 J	0.0061 J	0.019 U
FLUORENE	NC	0.068	0.11 J	0.051	0.019 U	0.018 U	0.0185 U	0.019 U
INDENO(1,2,3-CD)PYRENE	NC	0.032	0.14	0.082	0.019 U	0.018 U	0.0185 U	0.019 U
NAPHTHALENE	NC	0.018 J	0.04 J	0.016 J	0.019 U	0.018 U	0.0185 U	0.019 U
PHENANTHRENE	NC	0.09	0.5	0.23 J	0.0052 J	0.0053 J	0.0053 J	0.019 U
PYRENE	NC	0.15	0.97	0.4 J	0.008 J	0.008 J	0.008 J	0.019 U

Shaded cell indicates concentration greater than Removal Action (

BGS - Below ground surface.

D - Duplicate sample.

J - Estimated concentration.

MG/KG - Milligrams per kilogram.

NA - Not analyzed.

NC - No criterion (Removal Action Objective).

U - Below detection limit at detection limit shown.

TABLE 3

CONFIRMATION SAMPLE LABORATORY ANALYTICAL RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 6 OF 9

LOCATION SAMPLE IDENTIFICATION SAMPLE DATE TOP DEPTH, FEET BGS BOTTOM DEPTH, FEET BGS NOTES	Removal Action Objective	DASB230	DASB231			DASB232	DASB233	DASB234
		DASB230-0305	DASB231-0305	DASB231-0305-AVG	DASB231-0305-D	DASB232-0305	DASB233-0305	DASB234-0305
		20130411	20130411	20130411	20130412	20130412	20130412	20130412
		3	3	3	3	3	3	3
		5	5	5	5	5	5	5
PROPERTY LINE								
METALS (MG/KG)								
ARSENIC	7.6	4.3	5.1	5.05	5	6.1	5.8	6.6
LEAD	400	6.9	7.5	8.35	9.2	7	16	220
POLYCYCLIC AROMATIC HYDROCARBONS (MG/KG)								
BAP EQUIVALENT	2	0.02 U	0.021	0.018	0.014	0.021	0.024	7.9
2-METHYLNAPHTHALENE	NC	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.12 J
ACENAPHTHENE	NC	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.26 J
ACENAPHTHYLENE	NC	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.16 J
ANTHRACENE	NC	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.81
BENZO(A)ANTHRACENE	NC	0.02 U	0.019 U	0.004 J	0.004 J	0.019 U	0.011 J	5.9
BENZO(A)PYRENE	NC	0.02 U	0.019 U	0.0028 J	0.0028 J	0.019 U	0.011 J	5.7
BENZO(B)FLUORANTHENE	NC	0.02 U	0.0023 J	0.00235	0.0024 J	0.0024 J	0.0097 J	6.6
BENZO(G,H,I)PERYLENE	NC	0.0028 J	0.0034 J	0.0039	0.0044 J	0.0051 J	0.0081 J	2.8
BENZO(K)FLUORANTHENE	NC	0.02 U	0.019 U	0.0028 J	0.0028 J	0.019 U	0.0077 J	3.6
CHRYSENE	NC	0.02 U	0.0045 J	0.00485	0.0052 J	0.019 U	0.014 J	5.8
DIBENZO(A,H)ANTHRACENE	NC	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.66
FLUORANTHENE	NC	0.02 U	0.019 U	0.006 J	0.006 J	0.019 U	0.015 J	5
FLUORENE	NC	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.35
INDENO(1,2,3-CD)PYRENE	NC	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.0041 J	2.7
NAPHTHALENE	NC	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.24 J
PHENANTHRENE	NC	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.011 J	2.4
PYRENE	NC	0.02 U	0.0057 J	0.00705	0.0084 J	0.019 U	0.018 J	9.2

Shaded cell indicates concentration greater than Removal Action (

BGS - Below ground surface.

D - Duplicate sample.

J - Estimated concentration.

MG/KG - Milligrams per kilogram.

NA - Not analyzed.

NC - No criterion (Removal Action Objective).

U - Below detection limit at detection limit shown.

TABLE 3

CONFIRMATION SAMPLE LABORATORY ANALYTICAL RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 7 OF 9

LOCATION SAMPLE IDENTIFICATION SAMPLE DATE TOP DEPTH, FEET BGS BOTTOM DEPTH, FEET BGS NOTES	Removal Action Objective	DASB235 DASB235-0305 20130412 3 5 PROPERTY LINE	DASB236 DASB236-0305 20130412 3 5	DASB237 DASB237-0305 20130412 3 5	DASB238 DASB238-0305 20130409 3 5 PROPERTY LINE	DASB239 DASB239-0305 20130409 3 5 PROPERTY LINE	DASB240 DASB240-0305 20130409 3 5
METALS (MG/KG)							
ARSENIC	7.6	38	4.9	2.5	4.5	5.5	7.2
LEAD	400	1800	26	31	56	13	120
POLYCYCLIC AROMATIC HYDROCARBONS (MG/KG)							
BAP EQUIVALENT	2	2.1	0.15	0.016	0.18	0.018	1.9
2-METHYLNAPHTHALENE	NC	0.23 U	0.02 U	0.021 U	0.02 UJ	0.02 UJ	0.2 UJ
ACENAPHTHENE	NC	0.11 J	0.015 J	0.021 U	0.011 J	0.07 J	0.13 J
ACENAPHTHYLENE	NC	0.092 J	0.02 U	0.021 U	0.007 J	0.02 UJ	0.083 J
ANTHRACENE	NC	0.46	0.037	0.021 U	0.015 J	0.02 UJ	0.53 J
BENZO(A)ANTHRACENE	NC	1.5	0.11	0.0058 J	0.11 J	0.0062 J	1.6 J
BENZO(A)PYRENE	NC	1.3	0.1	0.0037 J	0.13 J	0.0066 J	1.4 J
BENZO(B)FLUORANTHENE	NC	1.8	0.11	0.0058 J	0.12 J	0.0046 J	1.5 J
BENZO(G,H,I)PERYLENE	NC	0.87	0.057	0.0025 J	0.088 J	0.0029 J	0.65 J
BENZO(K)FLUORANTHENE	NC	1	0.081	0.0025 J	0.083 J	0.0046 J	0.76 J
CHRYSENE	NC	1.4	0.11	0.0049 J	0.1 J	0.0066 J	1.6 J
DIBENZO(A,H)ANTHRACENE	NC	0.42	0.019 J	0.021 U	0.02 J	0.02 UJ	0.15 J
FLUORANTHENE	NC	2.7	0.21	0.0099 J	0.13 J	0.01 J	2.9 J
FLUORENE	NC	0.12 J	0.011 J	0.021 U	0.0065 J	0.02 UJ	0.15 J
INDENO(1,2,3-CD)PYRENE	NC	0.82	0.049	0.021 U	0.076 J	0.0033 J	0.61 J
NAPHTHALENE	NC	0.23 U	0.02 U	0.021 U	0.02 UJ	0.02 UJ	0.2 UJ
PHENANTHRENE	NC	1.7	0.12	0.0074 J	0.066 J	0.0091 J	1.6 J
PYRENE	NC	2.5	0.22	0.01 J	0.19 J	0.012 J	2.9 J

Shaded cell indicates concentration greater than Removal Action (

BGS - Below ground surface.

D - Duplicate sample.

J - Estimated concentration.

MG/KG - Milligrams per kilogram.

NA - Not analyzed.

NC - No criterion (Removal Action Objective).

U - Below detection limit at detection limit shown.

TABLE 3

CONFIRMATION SAMPLE LABORATORY ANALYTICAL RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 8 OF 9

LOCATION SAMPLE IDENTIFICATION SAMPLE DATE TOP DEPTH, FEET BGS BOTTOM DEPTH, FEET BGS NOTES	Removal Action Objective	DASB241			DASB242	DASB243	DASB244	DASB245
		DASB241-0305 20130409	DASB241-0305-AVG 20130409	DASB241-0305-D 20130409	DASB242-0305 20130409	DASB243-0305 20130409	DASS244-0002 20130417	DASS245-0002 20130417
		3	3	3	3	3	0	0
		5	5	5	5	5	2	2
						EXCAVATED	PIER WALL	PIER WALL
METALS (MG/KG)								
ARSENIC	7.6	7.7	7.85	8	7	6.2	6.3	9.4
LEAD	400	320	295	270	18	38	430	620
POLYCYCLIC AROMATIC HYDROCARBONS (MG/KG)								
BAP EQUIVALENT	2	1.5	1.0	0.51	0.022	5.7	0.38	0.71
2-METHYLNAPHTHALENE	NC	0.21 UJ	0.02 J	0.02 J	0.51 J	0.41 UJ	0.38 U	0.2 U
ACENAPHTHENE	NC	0.23 J	0.1475	0.065 J	0.018 J	0.85 J	0.38 U	0.084 J
ACENAPHTHYLENE	NC	0.21 UJ	0.023 J	0.023 J	0.02 UJ	0.41 UJ	0.38 U	0.2 U
ANTHRACENE	NC	0.57 J	0.365	0.16 J	0.031 J	2.4 J	0.38 U	0.2 J
BENZO(A)ANTHRACENE	NC	1.3 J	0.93	0.56 J	0.033 J	4.5 J	0.15 J	0.51 J
BENZO(A)PYRENE	NC	1.1 J	0.72	0.34 J	0.013 J	4.2 J	0.14 J	0.47 J
BENZO(B)FLUORANTHENE	NC	1.2 J	0.835	0.47 J	0.023 J	4 J	0.17 J	0.59 J
BENZO(G,H,I)PERYLENE	NC	0.57 J	0.385	0.2 J	0.011 J	2.6 J	0.083 J	0.14 J
BENZO(K)FLUORANTHENE	NC	0.64 J	0.435	0.23 J	0.016 J	2.2 J	0.11 J	0.29
CHRYSENE	NC	1.3 J	0.845	0.39 J	0.033 J	4.5 J	0.15 J	0.39
DIBENZO(A,H)ANTHRACENE	NC	0.11 J	0.077	0.044 J	0.0028 J	0.42 J	0.38 U	0.2 U
FLUORANTHENE	NC	2.3 J	1.52	0.74 J	0.098 J	8.7 J	0.26 J	1 J
FLUORENE	NC	0.26 J	0.173	0.086 J	0.027 J	0.68 J	0.38 U	0.1 J
INDENO(1,2,3-CD)PYRENE	NC	0.55 J	0.36	0.17 J	0.0073 J	2 J	0.38 U	0.22 J
NAPHTHALENE	NC	0.21 UJ	0.017 J	0.017 J	0.75 J	0.41 UJ	0.38 U	0.2 U
PHENANTHRENE	NC	2.1 J	1.39	0.68 J	0.1 J	6.9 J	0.11 J	0.83 J
PYRENE	NC	3 J	1.925	0.85 J	0.1 J	11 J	0.22 J	0.78 J

Shaded cell indicates concentration greater than Removal Action (C) (mg/kg)
BGS - Below ground surface.
D - Duplicate sample.
J - Estimated concentration.
MG/KG - Milligrams per kilogram.
NA - Not analyzed.
NC - No criterion (Removal Action Objective).
U - Below detection limit at detection limit shown.

TABLE 3

CONFIRMATION SAMPLE LABORATORY ANALYTICAL RESULTS
REMOVAL ACTION COMPLETION REPORT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 9 OF 9

LOCATION SAMPLE IDENTIFICATION SAMPLE DATE TOP DEPTH, FEET BGS BOTTOM DEPTH, FEET BGS NOTES	Removal Action Objective	DASB246 DASS246-0002 20130417 0 2	DASBCF			
			DASB-CF-01 20130417	DASB-CF-02 20130417	DASB-CF-03 20130419	DASB-CF-04 20130423
			NA	NA	NA	NA
			NA	NA	NA	NA
			FILL	FILL	FILL	FILL - TOPSOIL
METALS (MG/KG)						
ARSENIC	7.6	5.6	3.3	3.6	3.3	3.2
LEAD	400	52	3.4	3.6	3.3	12
POLYCYCLIC AROMATIC HYDROCARBONS (MG/KG)						
BAP EQUIVALENT	2	0.24	NA	NA	NA	0.13
2-METHYLNAPHTHALENE	NC	0.2 U	NA	NA	NA	0.08 U
ACENAPHTHENE	NC	0.2 U	NA	NA	NA	0.08 U
ACENAPHTHYLENE	NC	0.2 U	NA	NA	NA	0.08 U
ANTHRACENE	NC	0.2 U	NA	NA	NA	0.08 U
BENZO(A)ANTHRACENE	NC	0.13 J	NA	NA	NA	0.067 J
BENZO(A)PYRENE	NC	0.095 J	NA	NA	NA	0.07 J
BENZO(B)FLUORANTHENE	NC	0.14 J	NA	NA	NA	0.099
BENZO(G,H,I)PERYLENE	NC	0.046 J	NA	NA	NA	0.028 J
BENZO(K)FLUORANTHENE	NC	0.079 J	NA	NA	NA	0.052 J
CHRYSENE	NC	0.099 J	NA	NA	NA	0.07 J
DIBENZO(A,H)ANTHRACENE	NC	0.2 U	NA	NA	NA	0.08 U
FLUORANTHENE	NC	0.18 J	NA	NA	NA	0.13
FLUORENE	NC	0.2 U	NA	NA	NA	0.08 U
INDENO(1,2,3-CD)PYRENE	NC	0.13 J	NA	NA	NA	0.02 J
NAPHTHALENE	NC	0.2 U	NA	NA	NA	0.08 U
PHENANTHRENE	NC	0.12 J	NA	NA	NA	0.06 J
PYRENE	NC	0.15 J	NA	NA	NA	0.13

Shaded cell indicates concentration greater than Removal Action (

BGS - Below ground surface.

D - Duplicate sample.

J - Estimated concentration.

MG/KG - Milligrams per kilogram.

NA - Not analyzed.

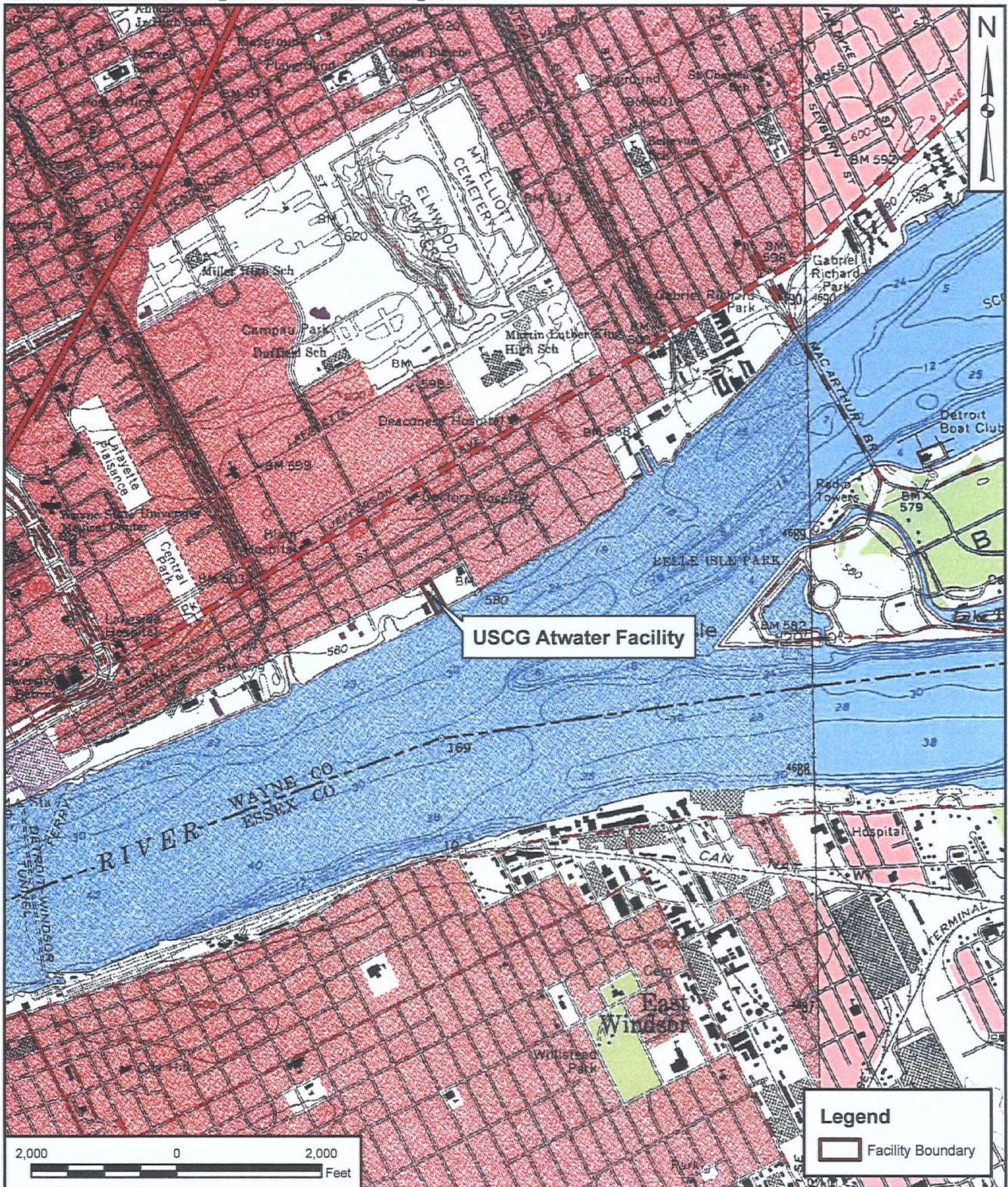
NC - No criterion (Removal Action Objective).

U - Below detection limit at detection limit shown.

FIGURES





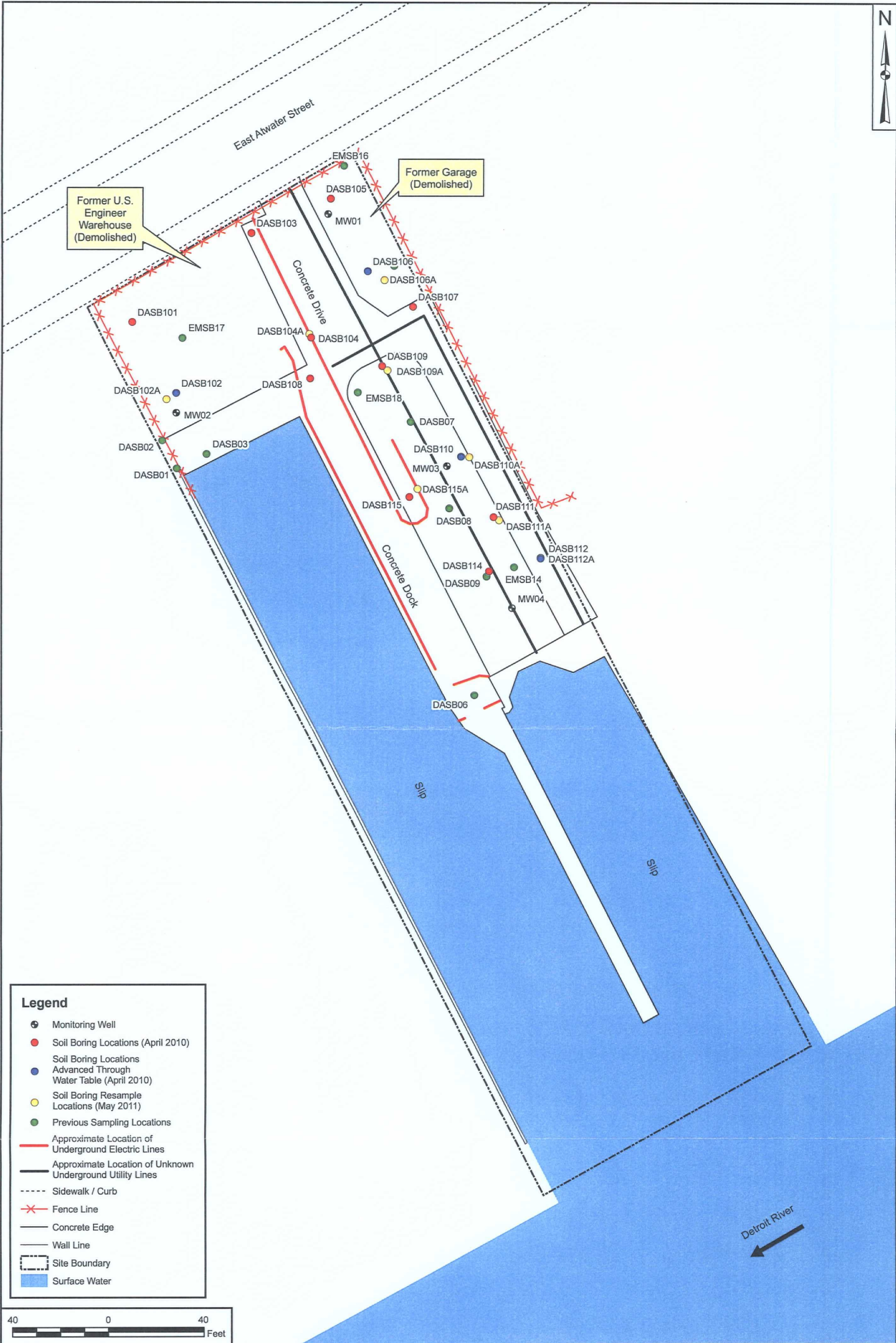


DRAWN BY	DATE
J. ENGLISH	07/27/11
CHECKED BY	DATE
S. HILL	09/23/11
REVISED BY	DATE
SCALE AS NOTED	



SITE LOCATION MAP ATWATER FACILITY DETROIT, MICHIGAN

CONTRACT NUMBER	CTO NUMBER
02435	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
FIGURE 1	0

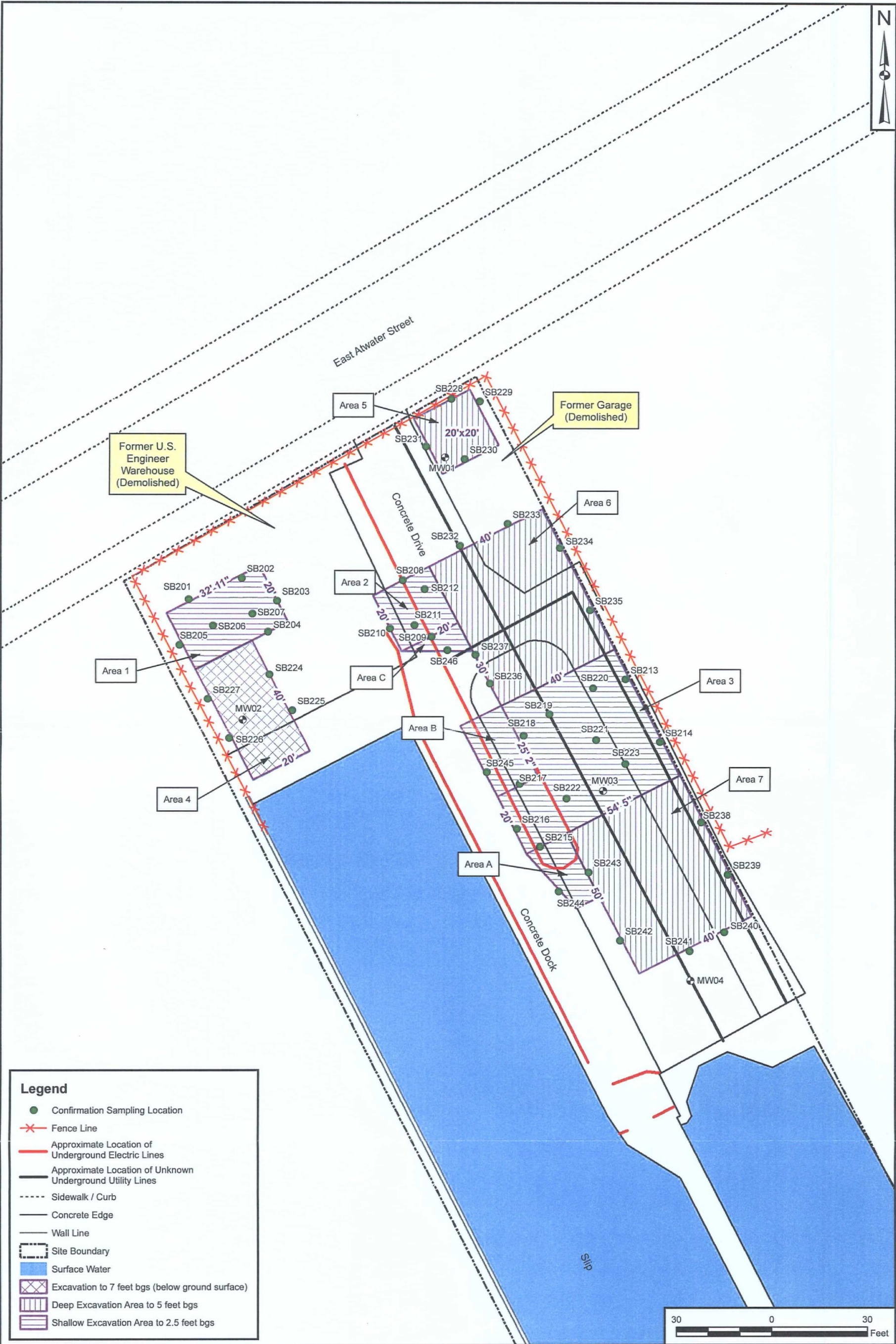


DRAWN BY	DATE
J. ENGLISH	09/23/11
CHECKED BY	DATE
S. VASKO	10/17/11
REVISED BY	DATE
SCALE	
AS NOTED	



SITE PLAN AND UTILITIES
ATWATER FACILITY
DETROIT, MICHIGAN

CONTRACT NUMBER	CTO NUMBER
02435	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
FIGURE 2	0

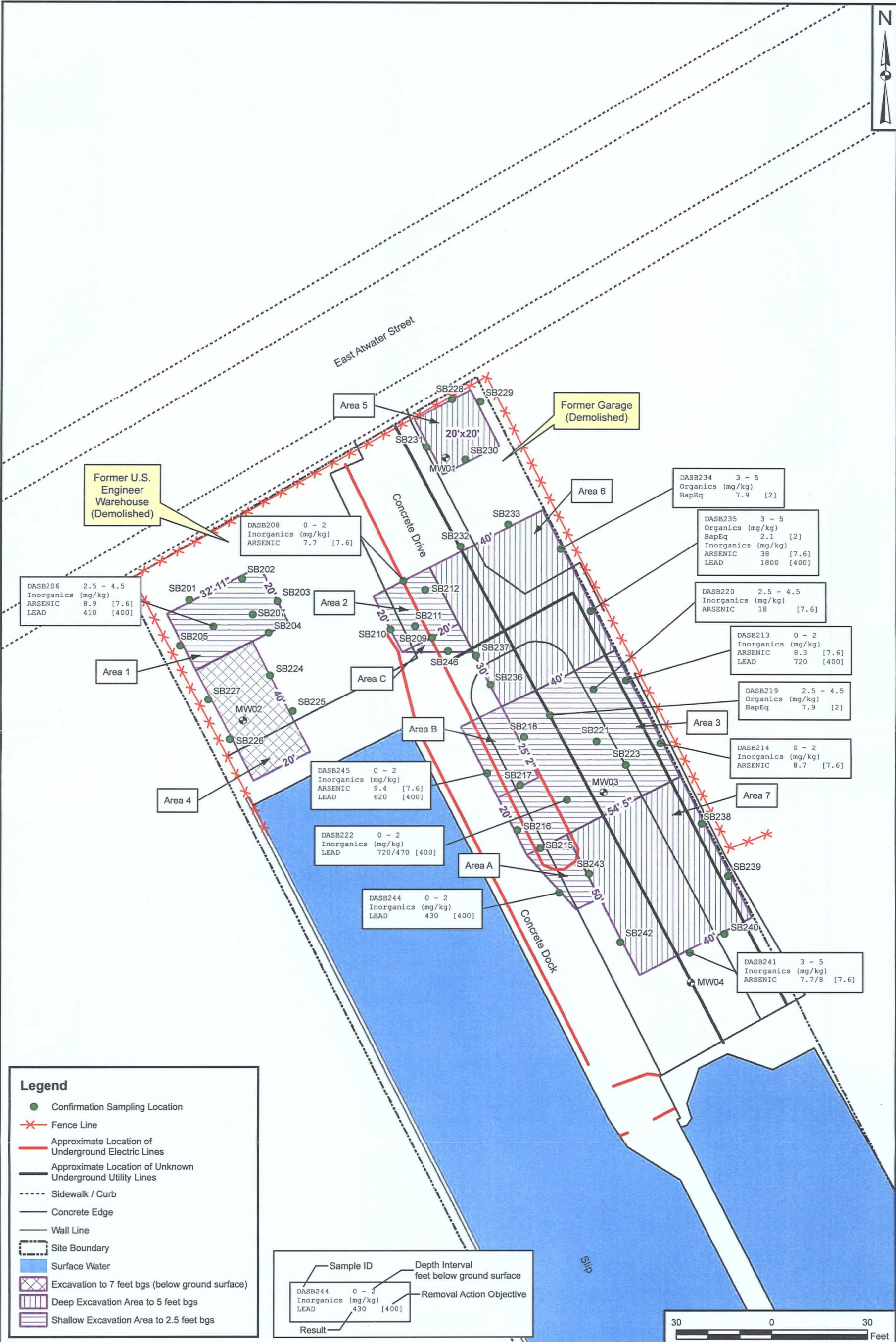


DRAWN BY	DATE
J. ENGLISH	11/14/12
CHECKED BY	DATE
J. LOGAN	5/23/13
REVISED BY	DATE
K. MOORE	5/13/13
SCALE AS NOTED	



CONFIRMATION SOIL SAMPLE LOCATIONS AND
EXTENT OF EXCAVATIONS
ATWATER FACILITY
DETROIT, MICHIGAN

CONTRACT NUMBER 02435	CTO NUMBER
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. FIGURE 3	REV 0







A

1. **Introduction**



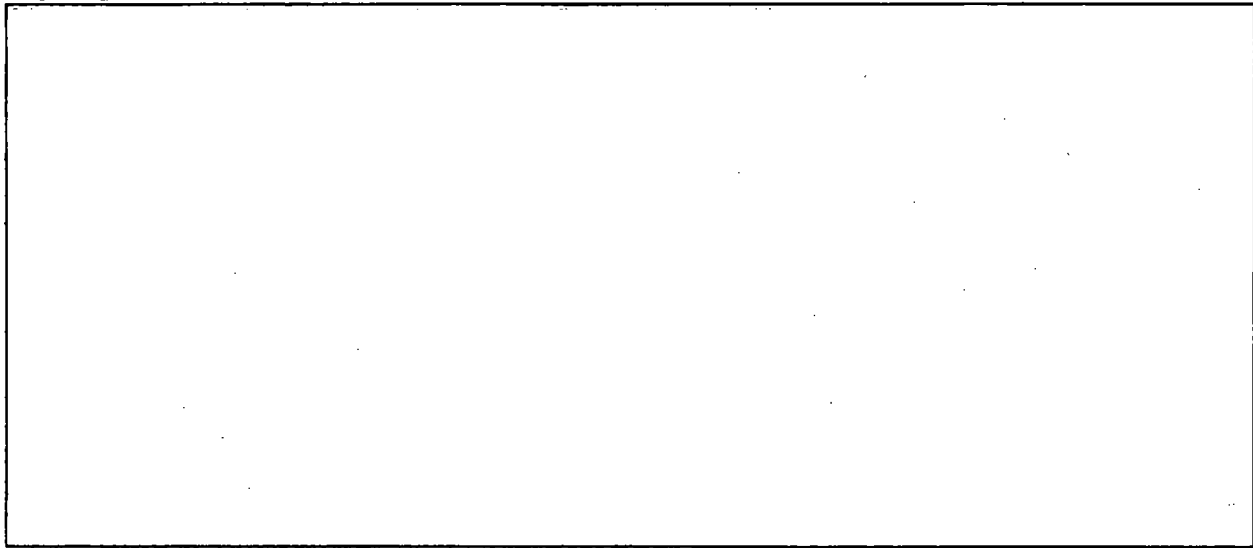
Appendix A

Public Participation Correspondence

State of Michigan } ss
County of Macomb }

Affidavit of Publication IN

Tetra Tech, Inc.
661 Andersen Drive Foster Plaza 7
Pittsburgh, PA 15220



Debbie Verschueren

Being duly sworn deposes and says that the above advertisement(s) appeared in the Detroit News and Free Press on Feb. 10-16, 2013, invoice 2318663. As an authorized employee of The Detroit Newspapers he/she knows well the facts stated herein.

Signed Debbie Verschueren

Sworn and subscribed to me, a notary Public in and for Macomb County, State of Michigan.

On This 18th Day of February 2013

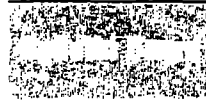
Meghan E. Ditrapani

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LEGAL NOTICE/ BIDS/PROPOSALS

DETROIT - Joy Preparatory Academy is accepting enrollment applications for 2013-14, March 1-31, grades K-2 at 1129 Oakman Blvd., grades 3-8 at 15055 Dexter Ave. If necessary, a public lottery will take place on April 19, at 12 p.m. at the Dexter location.

INVITATION TO BID
NOTICE: Community Development Institute Head Start serving Detroit MI (CDI HS) is soliciting bids from qualified contractors for life/safety and lead abatement repairs and asbestos removal for 2 centers located in Detroit, MI. Bids must be received by 9 a.m. on March 5, 2013 at CDI HS, 5555 Corner 735 Detroit, MI 48213 when the bids will be publicly opened and read. Contractors may obtain the contract documents, including conditions and bid forms from the Project Supervisor: John Stephenson 970-749-7341 or by email beavercreerun@yahoo.com. CDI HS reserves the right to accept or reject any or all bids. The bid may be held by CDI HS for up to thirty days from the opening date, to investigate the qualifications of the bidders prior to awarding any contract. Awards are subject to receipt of federal funds.

LEGAL NOTICE/ BIDS/PROPOSALS

Public Notice

The U.S. Coast Guard, Civil Engineering Unit Cleveland, in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act, is announcing the availability of the Engineering Evaluation and Cost Analysis and the Removal Action Work Plan for the proposed soil removal action at the U.S. Coast Guard Atwater Facility on 2680 East Atwater Street in Detroit, Michigan in Wayne County.

For additional information on this proposed action, please view a copy of the U.S. Coast Guard Atwater Facility Engineering Evaluation and Cost Analysis and the Removal Action Work Plan posted at the below listed locations from February 11 through March 13, 2013:

United States Coast Guard District 9 Public Affairs Web Site: <http://www.uscg.mil/cu/cleveland>

Detroit Public Library - Skillman Branch
121 Gratiot
Detroit, MI 48226
(313) 481-1850
Monday - Thursday:
10 AM to 6 PM
Saturday: 10 AM to 6 PM

Detroit Public Library - Main Branch
5201 Woodward Ave.
Detroit, MI 48202
(313) 481-1300
Tuesday - Wednesday:
Noon to 6 PM
Thursday - Saturday:
10 AM to 6 PM

Interested parties should provide written comments on this proposed action no later than March 13, 2013 to:

United States Coast Guard Civil Engineering Unit Cleveland
1240 East Ninth Street, Rm. 2179
Cleveland, Ohio 44199-2060
Attn: Mr. Gregory Carpenter, Chief of Environmental Section

If you have any questions, please contact Mr. James Cook at (216) 902-6255.

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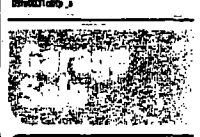
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B

Appendix B

Removal Waste Transportation and
Disposal Documents

MDEQ EQP5150 SITE IDENTIFICATION NUMBER



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



DAN WYANT
DIRECTOR

February 22, 2013

James Cook
United States Coast Guard
1240 E 9th St
Cleveland, OH 44199-2001

Dear James:

SUBJECT: Application Submitted to Obtain a Site Identification (ID) Number

This letter confirms that the Michigan Department of Environmental Quality (MDEQ) received the information you submitted on form EQP5150 to obtain a Site ID number issued under Part 111, Hazardous Waste Management, or Part 121, Liquid Industrial Waste, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA).

The Site ID number **MIK112091844** has been issued for the site located at: **2660 E Atwater St; Detroit, MI 48207**. Please note you may be contacted for additional information.

If you wish to review the information on record regarding this site you can log onto the MDEQ Web site at <http://www.michigan.gov/deq>. Click on WASTE, then under Featured Online Services click on Waste Data System. Enter the Site ID number in the "Quick Search" and click on "GO". This will bring up all of the information for this site under the hazardous waste or liquid industrial waste programs.

If you need to make any corrections, changes, or additions to the site data, for example, or change the site contact information; you can do so on a Site ID Form and fax, e-mail, or mail it to us. If you need to obtain a new Site ID number because the business moved to another location (Site ID number is assigned to the physical location), please go to the 'Waste Data System' as noted above and follow the instructions on the first page to print a EQP5150 Site ID form and pay on-line with a credit card. Then fax your completed Site ID form and Credit Card Receipt to 517-335-7145.

If you do not have access to the Internet you can obtain a blank copy of the form by contacting the MDEQ at 517-335-5139 and ask that a paper copy of the Site ID form EQP5150 be sent or faxed to you.

If you have any questions feel free to contact Mr. Gerry Kelly at 517-335-5139 or kellyg@michigan.gov.

Sincerely,

Jack Schinderle, Chief
Management and Tracking Unit
Hazardous Waste Section
Office of Waste Management and Radiological Protection

cc: Southeast Michigan District Office

SOIL MANIFESTS AND DISPOSAL DOCUMENTATION

#1

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163065

Section I **GENERATOR** (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater
Detroit, MI 48207 d. Address: _____
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 615
j. Description of Waste Contaminated Soil

k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Generator Authorized Agent Name Tedra Tech Signature USCG-Atwater Shipment Date 040913

Section II **TRANSPORTER**

TRANSPORTER I
a. Name: T.K.M.S.
b. Address: Oxford, MI
c. Driver Name/Title: Robert R. Carroll PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 004
f. Vehicle License No./State: AC55929 MI
Acknowledgment of Receipt of Materials:
g. Driver Signature [Signature] Shipment Date 040913

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials:
n. Driver Signature _____ Shipment Date _____

Section III **DESTINATION**

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10890 W. SIX MILE RD
NORTHVILLE MI 48168 d. Mailing Address: SAME
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent _____ Signature _____ Receipt Date _____

#2

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163066

417464

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same

c. Address: 2680 Atwater d. Address: _____

Detroit, MI 48207

e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____

h. WASTE CODE MI 887 140328 AH5296 515

j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE

DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS

P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Generator Authorized Agent Name T. K. M. S. Signature [Signature] Shipment Date 040913

Section II TRANSPORTER

TRANSPORTER I

a. Name: T. K. M. S. h. Name: _____

b. Address: OXFORD MI. i. Address: _____

c. Driver Name/Title: KYLE DRAHEIM j. Driver Name/Title: _____

d. Phone No.: _____ e. Truck No.: 002 k. Phone No.: _____ l. Truck No.: _____

f. Vehicle License No./State: AB 68116 MI. m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials: _____

g. [Signature] n. [Signature]

Shipment Date 040913 Shipment Date _____

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-342-7230

b. Physical Address: 10890 W. SIX MILE RD d. Mailing Address: SAME

NORTHVILLE MI 48169

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____

Name of Authorized Agent Signature Receipt Date

#3

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163067

417226

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
 c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
 e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
 h. WASTE CODE MI 687 140328 AH5296 515
 j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
 DM - METAL DRUM
 DP - PLASTIC DRUM
 DF - FIBRE DRUM
 B - BAG
 TR - TRUCK
 O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
 P - POUNDS
 Y - YARDS
 T - TONS
 Y3 - CUBIC YARDS
 O - OTHER

Generator Authorized Agent Name

Signature

Shipment Date

Section II TRANSPORTER

TRANSPORTER I

a. Name: T.K.M.S.
 b. Address: Oxford Ms.
 c. Driver Name/Title: LEEMOND EADS
 PRINT/TYPE
 d. Phone No.: _____ e. Truck No.: 026
 f. Vehicle License No./State: AC 99841 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 040913
 Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
 i. Address: _____
 j. Driver Name/Title: _____
 PRINT/TYPE
 k. Phone No.: _____ l. Truck No.: _____
 m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
 Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
 b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168
 e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
 Name of Authorized Agent Signature Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163068

416214

Section I**GENERATOR** (Generator completes all of Section I)

United States Coast Guard

Same

a. Generator Name: _____

b. Generating Location: _____

c. Address: 2600 Atwater

d. Address: _____

Detroit, MI 48207

e. Phone No.: _____

f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____

h. Owner's Phone No.: _____

h. WASTE CODE MI 887 140328

AH5296 515

j. Description of Waste Contaminated Soil

k. Quantity

Units

Type

00040

Y

TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt
Generator Authorized Agent Name

Signature

040913
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II**TRANSPORTER****TRANSPORTER I**

a. Name: T.K.M.S.

b. Address: OXFORD MI.

c. Driver Name/Title: Brad Russell

PRINT/TITLE

d. Phone No.: _____ e. Truck No.: 004

f. Vehicle License No./State: AC55929 MI.

Acknowledgment of Receipt of Materials:

g. Driver Signature: [Signature] 040913

Shipment Date

TRANSPORTER II

h. Name: _____

i. Address: _____

j. Driver Name/Title: _____

PRINT/TITLE

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. Driver Signature: _____

Shipment Date

Section III**DESTINATION**

a. Site Name: ADS ARBOR HILLS LANDFILL

c. Phone No.: 248-348-7230

b. Physical Address: 10000 W. SIX MILE RD

d. Mailing Address: SAME

NORTHVILLE MI 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent: _____

Signature

Receipt Date

#7

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163069

417470

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same

c. Address: 2680 Atwater d. Address: _____
Detroit, MI 48207

e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____

h. WASTE CODE MI 687 140328 AH5296 515

j. Description of Waste Contaminated Soil

k. Quantity 00040 Units Y Type TR

TYPE

DM - METAL DRUM
 DP - PLASTIC DRUM
 DF - FIBRE DRUM
 B - BAG
 TR - TRUCK
 O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdon
Benjamin W. K. G.
 Generator Authorized Agent Name Signature

040913
 Shipment Date

UNITS

P - POUNDS
 Y - YARDS
 T - TONS
 Y3 - CUBIC YARDS
 O - OTHER

Section II TRANSPORTER

TRANSPORTER I

a. Name: T.K.M.S. h. Name: _____

b. Address: OXFORD MI i. Address: _____

c. Driver Name/Title: KYLE DRAHEIM j. Driver Name/Title: _____
 PRINT/TYPE PRINT/TYPE

d. Phone No.: _____ e. Truck No.: 002 k. Phone No.: _____ l. Truck No.: _____

f. Vehicle License No./State: AB68116 MI m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

g. [Signature] n. [Signature]
 Driver Signature Driver Signature

040913 [Signature]
 Shipment Date Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230

b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
 Name of Authorized Agent Signature

[Signature] [Signature]
 Receipt Date

#8

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163070

4117227

Section I

GENERATOR

(Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same

c. Address: 2600 Atwater d. Address: _____

Detroit, MI 48207

e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____

h. WASTE CODE MI 887 140328 AH5296 515

j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE

DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goadon 040913

Generator Authorized Agent Name Signature Shipment Date

UNITS

P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II

TRANSPORTER

TRANSPORTER I

a. Name: T. K. M. S.

b. Address: OXFORD MI

c. Driver Name/Title: LEONARD EDE PRINT/TITLE

d. Phone No.: _____ e. Truck No.: 026

f. Vehicle License No./State: AC 89841 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 040913

Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____

i. Address: _____

j. Driver Name/Title: _____ PRINT/TITLE

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ [Signature] _____

Driver Signature Shipment Date

Section III

DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230

b. Physical Address: 10000 W. SIX MILE RD d. Mailing Address: SAME

NORTHVILLE MI 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ [Signature] _____ [Signature] _____

Name of Authorized Agent Signature Receipt Date

#11

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163071
416215**Section I GENERATOR** (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
i. Description of Waste Contaminated Soil k. Quantity 00040 Units 4 Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goeldi on
behalf of USCG
Generator Authorized Agent Name

Signature

040913
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER**TRANSPORTER I**

a. Name: T.K.M.S.
b. Address: OXford MI.
c. Driver Name/Title: Brad Rundell
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 004
f. Vehicle License No./State: AC55929 MI.

Acknowledgment of Receipt of Materials:

g. Bradley A. Rundell 040913
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10800 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48169
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature

Receipt Date

#12

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163072

417471

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
i. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goard [Signature] 040913
Generator Authorized Agent Name Signature Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: T.K.M.S. h. Name: _____
b. Address: Oxford MI i. Address: _____
c. Driver Name/Title: VYIE DRAHEIM j. Driver Name/Title: _____
PRINT/TYPE PRINT/TYPE
d. Phone No.: _____ e. Truck No.: 002 k. Phone No.: _____ l. Truck No.: _____
f. Vehicle License No./State: AB68116 MI m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials: Acknowledgment of Receipt of Materials:
g. [Signature] 040913 n. _____
Driver Signature Shipment Date Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48188
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ g. _____
Name of Authorized Agent Signature Receipt Date

#13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163073

417228

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2860 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goggin [Signature] 040913
Generator Authorized Agent Name Signature Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: T. KIM S. h. Name: _____
b. Address: OXFORD MI. i. Address: _____
c. Driver Name/Title: LEMMOND FORDS j. Driver Name/Title: _____
PRINT/TYPE PRINT/TYPE
d. Phone No.: _____ e. Truck No.: 026 k. Phone No.: _____ l. Truck No.: _____
f. Vehicle License No./State: AC89841 MI. m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials: Acknowledgment of Receipt of Materials:
g. [Signature] 040913 n. _____
Driver Signature Shipment Date Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10300 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ g. _____
Name of Authorized Agent Signature Receipt Date

#16

**NON-HAZARDOUS
SPECIAL WASTE MANIFEST**

4163074

416216

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
i. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdon [Signature] 040913
Generator Authorized Agent Name Signature Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

a. Name: T. K. M. S. h. Name: _____
b. Address: OXFORD MI. i. Address: _____
c. Driver Name/Title: Brnd Ruppel j. Driver Name/Title: _____
PRINT/TITLE PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 004 k. Phone No.: _____ l. Truck No.: _____
f. Vehicle License No./State: AC55929 MI. m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

Acknowledgment of Receipt of Materials:

g. [Signature] 040913 n. _____
Driver Signature Shipment Date Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10680 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#17

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163075

417472

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Abwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Guehl USEC 040913
Generator Authorized Agent Name Signature Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: T.K.M.S. h. Name: _____
b. Address: Oxford MI i. Address: _____
c. Driver Name/Title: VVE DRIVER j. Driver Name/Title: _____
PRINT/TYPE PRINT/TYPE
d. Phone No.: _____ e. Truck No.: 002 k. Phone No.: _____ l. Truck No.: _____
f. Vehicle License No./State: AB68116 MI m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials: Acknowledgment of Receipt of Materials:
g. [Signature] 040913 n. _____
Driver Signature Shipment Date Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48162
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ [Signature] [Date]
Name of Authorized Agent Signature Receipt Date

#18

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163076

417229

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2880 Alwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdon
behalf of USCG
Generator Authorized Agent Name Signature

040913
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: T.K.M.S.
b. Address: OXFORD MI.
c. Driver Name/Title: LEONARD EADS
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 026
f. Vehicle License No./State: AC89841 MI.

Acknowledgment of Receipt of Materials:

g. [Signature] 040913
Driver Signature Shipment Date

TRANSPORTER-II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10880 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48168
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#15

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163077

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2000 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units 4 Type FR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goodall on
behalf of USCG
Generator Authorized Agent Name

[Signature]
Signature

040913
Shipment Date

Section II TRANSPORTER

TRANSPORTER I

a. Name: H.M. Enuird
b. Address: 141 Clements Mt.
c. Driver Name/Title: Patrick J Blair
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 121
f. Vehicle License No./State: RA 28257 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 040913
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10890 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature

040913
Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163078
416218

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same

c. Address: 2600 Atwater d. Address: _____

Detroit, MI 48207

e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: MI 887 140328 AH5296 515

h. WASTE CODE Contaminated Soil

j. Description of Waste _____

k. Quantity 00046 Units 4 Type TR

TYPE

DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS

P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt on
behalf of USCG
Generator Authorized Agent Name _____ Signature _____

041613
Shipment Date

Section II TRANSPORTER

TRANSPORTER I

a. Name: T.K.M.S.

b. Address: OXFORD M.

c. Driver Name/Title: Brad Pundell
PRINT/TITLE

d. Phone No.: _____ e. Truck No.: 004

f. Vehicle License No./State: AC55929 MI.

Acknowledgment of Receipt of Materials:

g. Bradley A. Adell
Driver Signature _____ 041613
Shipment Date

TRANSPORTER II

h. Name: _____

i. Address: _____

j. Driver Name/Title: _____
PRINT/TITLE

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature _____ _____
Shipment Date

Section III DESTINATION

a. Site Name: AUS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230

b. Physical Address: 10600 W. SIX MILE RD d. Mailing Address: SAME

NORTHVILLE MI. 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent _____ Signature _____

041613
Receipt Date

#2
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163079

417473

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Abwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdon
General Authorized Agent

Signature

041013
Shipment Date

Section II TRANSPORTER

TRANSPORTER I

a. Name: T.K.M.S.
b. Address: OXFORD MI
c. Driver Name/Title: KYLE DEHEIM
d. Phone No.: _____ e. Truck No.: 002
f. Vehicle License No./State: AB68116 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 041013
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10890 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#3
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163080

417235

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same

c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207

e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____

h. WASTE CODE MI 687 140328 AH5296 516

j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBRE DRUM
B	- BAG
TR	- TRUCK
O	- OTHER

UNITS	
P	- POUNDS
Y	- YARDS
T	- TONS
Y3	- CUBIC YARDS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, If the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdton
behalf of USCG
Generator Authorized Agent Name

[Signature]
Signature

041013
Shipment Date

Section II TRANSPORTER

TRANSPORTER I

a. Name: T.K.M.S.

b. Address: OXFORD MI.

c. Driver Name/Title: LEFOND EADH
PRINT/TITLE

d. Phone No.: _____ e. Truck No.: 026

f. Vehicle License No./State: AC 89841 MI.

Acknowledgment of Receipt of Materials:

g. [Signature] 041013
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____

i. Address: _____

j. Driver Name/Title: _____
PRINT/TITLE

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL

b. Physical Address: 10880 W. SIX MILE RD
NORTHVILLE MI 48168

c. Phone No.: 248-349-7230

d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature

Receipt Date

#4
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163081

416219

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2680 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goetz
behalf of USCG
Generator Authorized Agent Name

[Signature]
Signature

041013
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: T.K.M.S.
b. Address: Overland Ave
c. Driver Name/Title: Brad Pundell PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 004
f. Vehicle License No./State: AL 55929 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 041013
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48169
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#5
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163082

417474

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard Same
b. Generating Location: _____
c. Address: 2660 Atwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
i. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdt on
behalf of USCG
Generator Authorized Agent Name

[Signature]
Signature

041013
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: T.K.M.S.
b. Address: Oxford MI
c. Driver Name/Title: KYLE DRAHAM
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 002
f. Vehicle License No./State: AB 68116 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 041013
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10690 W. SIX MILE RD
NORTHVILLE, MI 48162 d. Mailing Address: SAME
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

GENERATOR RETAIN

#6
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163083
417236

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2860 Alwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Gerdton
Generator Authorized Agent Name Signature 041013 Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: T.K.M.S.
b. Address: Oxford MI.
c. Driver Name/Title: LEONARD EADS
d. Phone No.: _____ e. Truck No.: 026
f. Vehicle License No./State: AC 89841 MI.

Acknowledgment of Receipt of Materials:

g. Signature 041013 Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 041013 Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-340-7230
b. Physical Address: 10390 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#7
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163084

Section I

GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2880 Atwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
i. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil
k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdts
behalf of USCG
Generator Authorized Agent Name Signature

041013
Shipment Date

Section II

TRANSPORTER

TRANSPORTER I
a. Name: H.M. Gwyke
b. Address: Mt. Clemens MI.
c. Driver Name/Title: Patrick J. Blair
PRINT/TYPE
d. Phone No.: _____ e. Truck No.: 121
f. Vehicle License No./State: RA 28257 MI.

Acknowledgment of Receipt of Materials:

g. [Signature] 041013
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TYPE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III

DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10880 W. SIX MILE RD
NORTHVILLE, MI 48168
d. Mailing Address: SAME
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#8
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163085

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdt on
behalf of USCG Signature _____

041013
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: H. M. Enviro
b. Address: Mt Clemens MI
c. Driver Name/Title: Patrick J Blair
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 121
f. Vehicle License No./State: RA 78757 MI

Acknowledgment of Receipt of Materials:

g. ABZ 041013
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature _____ Receipt Date _____

#9
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163086
416220

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: 2690 Atwater
c. Address: Detroit, MI 48207
e. Phone No.: _____
b. Generating Location: _____
d. Address: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: MI 887 140328
h. WASTE CODE Contaminated Soil
i. Description of Waste _____
k. Quantity 60040 Units Y Type TR
h. Owner's Phone No.: AH5296 515

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goertzen
Generator Authorized Agent Name [Signature] Shipment Date 041013

Section II TRANSPORTER

TRANSPORTER I
a. Name: T.K.M.S.
b. Address: OXFORD MI.
c. Driver Name/Title: Brad Pundell
d. Phone No.: _____ e. Truck No.: 004
f. Vehicle License No./State: AC55929 MT.
Acknowledgment of Receipt of Materials:
g. [Signature] 041013
Driver Signature Shipment Date
TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials:
n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: AOS ARBOR HILLS LANDFILL
b. Physical Address: 10690 W. SIX MILE RD
NORTHVILLE, MI. 48168
c. Phone No.: 248-348-7230
d. Mailing Address: SAME

e. TICKET No.: _____
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate

f. _____
Name of Authorized Agent Signature Receipt Date

#10
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163087

417475

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2880 Alameda d. Address:
Detroit, MI 48207

e. Phone No.: f. Phone No.:

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: h. Owner's Phone No.:

h. WASTE CODE MI 687 140328 AH5296 515

j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, If the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goetz on behalf of USCG Signature [Signature] Shipment Date 041013
Generator Authorized Agent Name

Section II TRANSPORTER

TRANSPORTER I

a. Name: F.K.M.S.

b. Address: Oxford, MI

c. Driver Name/Title: KYLE DRAGAN
PRINT/TITLE

d. Phone No.: e. Truck No.: 002

f. Vehicle License No./State: AB 68116 MI

Acknowledgment of Receipt of Materials:

g. [Signature] Shipment Date 041013
Driver Signature

TRANSPORTER II

h. Name:

i. Address:

j. Driver Name/Title:
PRINT/TITLE

k. Phone No.: l. Truck No.:

m. Vehicle License No./State:

Acknowledgment of Receipt of Materials:

n. Shipment Date
Driver Signature

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL

b. Physical Address: 10690 W. SIX MILE RD

NORTHVILLE MI 48168

c. Phone No.: 248-340-7230

d. Mailing Address: SAME

e. TICKET No.:

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent Signature Receipt Date

File
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163088

417237

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard Same
b. Generating Location: _____
c. Address: 2660 Atwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 516
j. Description of Waste Contaminated Soil
k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residus of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdt on
Director of USCG
Generator Authorized Agent Name Signature 04/10/13 Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: T.K.M.S.
b. Address: Oxford MI
c. Driver Name/Title: LEONARD FADS PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 026
f. Vehicle License No./State: AG 89841 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 04/10/13
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 04/10/13
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL
b. Physical Address: 10000 W. SIX MILE RD
NORTHVILLE MI 48169
e. TICKET No.: _____

c. Phone No.: 248-349-7230
d. Mailing Address: SAME

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ 04/10/13
Name of Authorized Agent Signature Receipt Date

#13
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163089

416221

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same

c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207

e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____

h. WASTE CODE MI 687 140328 AH5296 515

j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBRE DRUM
B	- BAG
TR	- TRUCK
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, If the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt [Signature] 041013
Generator Authorized Agent Name Signature Shipment Date

UNITS	
P	- POUNDS
Y	- YARDS
T	- TONS
Y3	- CUBIC YARDS
O	- OTHER

Section II TRANSPORTER

TRANSPORTER I

a. Name: T. K. M. S.

b. Address: Oxford MI.

c. Driver Name/Title: Brad Pundell
PRINT/TITLE

d. Phone No.: _____ e. Truck No.: 004

f. Vehicle License No./State: AC55929 MI.

Acknowledgment of Receipt of Materials:

g. [Signature] 041013
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____

i. Address: _____

j. Driver Name/Title: _____
PRINT/TITLE

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL

b. Physical Address: 10890 W. SIX MILE RD
NORTHVILLE, MI 48169

e. TICKET No.: _____

c. Phone No.: 248-349-7230

d. Mailing Address: SAME

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#14
4-10-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163090

417470

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same

c. Address: 2880 Abwater
Detroit, MI 48207 d. Address: _____

e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____

h. WASTE CODE MI 687 140328 AH5296 515

j. Description of Waste Contaminated Soil k. Quantity 00040 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goodell
Belmont, MI
Generator Authorized Agent Name Signature 041013
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I

a. Name: T. K. M. S. h. Name: _____

b. Address: Oxford MI. i. Address: _____

c. Driver Name/Title: VYLE DRAHEIM j. Driver Name/Title: _____
PRINT/TITLE

d. Phone No.: _____ e. Truck No.: 002 k. Phone No.: _____ l. Truck No.: _____

f. Vehicle License No./State: AB 68116 MI. m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

g. [Signature] 041013 n. _____
Driver Signature Shipment Date Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230

b. Physical Address: 10890 W. SIX MILE RD
NORTHVILLE MI 48168 d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature 041013
Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163091

Section I GENERATOR (Generator completes all of Section I)

United States Coast Guard **Same**

a. Generator Name: _____ b. Generating Location: _____

c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207

e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____

h. WASTE CODE MI 087 140328 AH5296 515

j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE

DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS

P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdel on
behalf of USCG 041013

Generator Authorized Agent Name Signature Shipment Date

Section II TRANSPORTER

TRANSPORTER I **TRANSPORTER II**

a. Name: H. M. Envero h. Name: _____

b. Address: Mt Clemens MI. i. Address: _____

c. Driver Name/Title: PATRICK J Blair j. Driver Name/Title: _____
PRINT/TITLE PRINT/TITLE

d. Phone No.: _____ e. Truck No.: 121 k. Phone No.: _____ l. Truck No.: _____

f. Vehicle License No./State: RA28257 MI. m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials: Acknowledgment of Receipt of Materials:

g. [Signature] 041013 n. _____ [Signature]
Driver Signature Shipment Date Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230

b. Physical Address: 10620 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ [Signature] [Date]
Name of Authorized Agent Signature Receipt Date

#1
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163092

6K7922

Section I

GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard
c. Address: 2660 Atwater
Detroit, MI 48207
e. Phone No.: _____

b. Generating Location: Same
d. Address: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____
h. WASTE CODE MI 687 140328
j. Description of Waste Contaminated Soil

h. Owner's Phone No.: _____
k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdite
on behalf of USCG
Generator Authorized Agent Name

Signature

041113
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II

TRANSPORTER

a. Name: Louis
b. Address: Pontiac MI
c. Driver Name/Title: Jim Schenell
(PRINT/TITLE)
d. Phone No.: _____ e. Truck No.: 572
f. Vehicle License No./State: AC 22259 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 041113
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
(PRINT/TITLE)
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III

DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL
b. Physical Address: 10590 W. SIX MILE RD
NORTHVILLE MI 48169
e. TICKET No.: _____

c. Phone No.: 248-349-7230
d. Mailing Address: SAME

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate

f. _____
Name of Authorized Agent

Signature

Receipt Date

#2
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163093

637 872

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2680 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Gonzalez
Generator Authorized Agent Name [Signature] Signature 041113 Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I

a. Name: LOU'S
b. Address: PONTIAC MI
c. Driver Name/Title: AL HARRIS PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 848
f. Vehicle License No./State: AC22261 MI

Acknowledgment of Receipt of Materials:

g. AL HARRIS 041113
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10890 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48180
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature 041113 Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163094

633872

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2680 Alwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Gordin
Generator Authorized Agent Name

[Signature]
Signature

041113
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: LOU'S
b. Address: Pontiac MI
c. Driver Name/Title: Daniel McClelland
d. Phone No.: _____ e. Truck No.: 122
f. Vehicle License No./State: AB 93399 MI

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

g. [Signature] 041113
Driver Signature Shipment Date

Acknowledgment of Receipt of Materials:

n. _____ 041113
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL
b. Physical Address: 10680 W. SIX MILE RD
NORTHVILLE MI 48169
e. TICKET No.: _____

c. Phone No.: 248-348-7230
d. Mailing Address: SAME

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate

f. _____ 041113
Name of Authorized Agent Signature Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163
63/9

Section I

a. Generator Name: United States Coast Guard **GENERATOR** (Generator completes all of Section I)

c. Address: 2660 Alwater
Detroit, MI 48207

e. Phone No.: _____

b. Generating Location: Same

d. Address: _____

f. Phone No.: _____

g. Owner's Name: _____

If owner of the generating facility differs from the generator, provide:

h. WASTE CODE MI 687 140328

j. Description of Waste Contaminated Soil

h. Owner's Phone No.: AH5296 515

k. Quantity 00030

Units Y

Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name Jim Gossard

Signature [Signature]

Section II

a. Name: LOU'S **TRANSPORTER I**

b. Address: Pontiac MI.

c. Driver Name/Title: Dod TAHOL **TRANSPORTER**

d. Phone No.: _____

f. Vehicle License No./State: AC 77537 MI

Acknowledgment of Receipt of Materials: [Signature]

Driver Signature

Shipment Date 04/11/13

Section III

Site Name: ADS ARBOR HILLS LANDFILL

Physical Address: 10890 W. SIX MILE RD

NORTHVILLE MI 48162

CKET No.: _____

areby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Authorized Agent

Signature _____

Receipt Date 04/11/13

#5
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163096

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2680 Atwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:
g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil
k. Quantity 30 Units Y Type TR

- TYPE
- DM - METAL DRUM
 - DP - PLASTIC DRUM
 - DF - FIBRE DRUM
 - B - BAG
 - TR - TRUCK
 - O - OTHER
- UNITS
- P - POUNDS
 - Y - YARDS
 - T - TONS
 - Y3 - CUBIC YARDS
 - O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Gordin
Generator Authorized Agent Name Signature 041113 Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: LOU'S
b. Address: Pontiac MI
c. Driver Name/Title: ROXINE SMITH PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 934
f. Vehicle License No./State: AC17792 MT
Acknowledgment of Receipt of Materials:
g. Rox Smith 041113
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials:
n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10690 W. SIX MILE RD
NORTHVILLE, MI 48168
d. Mailing Address: SAME

e. TICKET No.: _____
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature 041113 Receipt Date

#6
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163097

Section I

GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2680 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI - 887 - 140328 - AH5296 - 515
j. Description of Waste Contaminated Soil k. Quantity 20030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goodson [Signature] 041113
Generator Authorized Agent Name Signature Shipment Date

Section II

TRANSPORTER

TRANSPORTER I

a. Name: Lou's
b. Address: Pontiac MI
c. Driver Name/Title: STEVE SHEFFELD / DRIVER
PRINT/TITLE
d. Phone No.: (248) 332-5077 e. Truck No.: 837
f. Vehicle License No./State: AA46747 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 041113
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III

DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10800 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168
e. TICKET No.: _____

hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

1
7-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163098

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
i. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt
Director of U-CC
Generator Authorized Agent Name Signature 041113 Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: Low's b. Address: Pontiac MI
c. Driver Name/Title: T. S. Sells II PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 572
f. Vehicle License No./State: AC22259 MI

TRANSPORTER II
h. Name: _____ i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

g. [Signature] 041113 Shipment Date
n. _____ Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10600 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48152
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ Receipt Date
Name of Authorized Agent Signature

GENERATOR RETAIN

#8
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

2827

4163099

632575

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2680 Alwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
i. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt Generator Authorized Agent Name [Signature] Signature 041113 Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: Louis
b. Address: Pontiac MI
c. Driver Name/Title: AL Haus PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 848
f. Vehicle License No./State: AC22261 MI
g. AL Haus Driver Signature 041113 Shipment Date
Acknowledgment of Receipt of Materials: _____

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____
n. _____ Driver Signature _____ Shipment Date
Acknowledgment of Receipt of Materials: _____

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48169
e. TICKET No.: _____
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.
f. _____ Name of Authorized Agent _____ Signature _____ Receipt Date 041113

#9
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163654

63387

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same

c. Address: 2880 Atwater d. Address: _____
Detroit, MI 48207

e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____

h. WASTE CODE: MI 887 140328 AH5296 515

j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name Jim Goerdt Signature [Signature] Shipment Date 04/11/13

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
DF	- FIBRE DRUM
B	- BAG
TR	- TRUCK
O	- OTHER

UNITS	
P	- POUNDS
Y	- YARDS
T	- TONS
Y3	- CUBIC YARDS
O	- OTHER

Section II TRANSPORTER

TRANSPORTER I		TRANSPORTER II	
a. Name: <u>Lou's</u>		h. Name: _____	
b. Address: <u>Pontiac MI</u>		i. Address: _____	
c. Driver Name/Title: <u>Daniel Mclelland</u> PRINT/TYPE		j. Driver Name/Title: _____ PRINT/TYPE	
d. Phone No.: _____	e. Truck No.: <u>122</u>	k. Phone No.: _____	l. Truck No.: _____
f. Vehicle License No./State: <u>AB 93399 MI</u>		m. Vehicle License No./State: _____	
Acknowledgment of Receipt of Materials: g. <u>[Signature]</u> <u>04/11/13</u> Driver Signature Shipment Date		Acknowledgment of Receipt of Materials: n. _____ Driver Signature Shipment Date	

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-340-7230

b. Physical Address: 10600 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent _____ Signature _____ Receipt Date 04/11/13

#10
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163655

631 946

Section I

GENERATOR

(Generator completes all of Section I)

United States Coast Guard

Same

a. Generator Name: _____

b. Generating Location: _____

c. Address: 2680 Atwater

d. Address: _____

Detroit, MI 48207

e. Phone No.: _____

f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____

h. Owner's Phone No.: _____

h. WASTE CODE MI 687 140328

AH5296 515

i. Description of Waste Contaminated Soil

k. Quantity 00030 Units 4 Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Generator Authorized Agent Name

Signature

Shipment Date

041113

Section II

TRANSPORTER

TRANSPORTER I

a. Name: Lou's

b. Address: Pontiac MI.

c. Driver Name/Title: Don T. Lee

PRINT/TYPE

d. Phone No.: _____ e. Truck No.: 371

f. Vehicle License No./State: AC 77537 MI.

Acknowledgment of Receipt of Materials:

Driver Signature [Signature] Shipment Date 041113

TRANSPORTER II

h. Name: _____

i. Address: _____

j. Driver Name/Title: _____

PRINT/TYPE

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. Driver Signature _____ Shipment Date _____

Section III

DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL

c. Phone No.: 248-349-7230

b. Physical Address: 10600 W. SIX MILE RD

d. Mailing Address: SAME

NORTHVILLE MI. 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent _____ Signature _____

Receipt Date 041113

4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163656
632717

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard Same
b. Generating Location: _____
c. Address: 2660 Alwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goertzen
Generator Authorized Agent Name

[Signature]
Signature

041113
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I

a. Name: Lou's
b. Address: Pontiac MI
c. Driver Name/Title: Ronnie Smith PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 934
f. Vehicle License No./State: AC 17792 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 041113
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL
b. Physical Address: 10000 W. SIX MILE RD
NORTHVILLE MI 48169

c. Phone No.: 248-349-7230
d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature

Receipt Date

#12
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163657

71x 4627373

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2880 Alwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdon
Generator Authorized Agent Name Signature 041113 Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: Lou's
b. Address: Pontiac MI
c. Driver Name/Title: Steve Sweeney PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 837
f. Vehicle License No./State: AA 46747
Acknowledgment of Receipt of Materials:
g. [Signature] 041113 Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials:
n. _____ 041113 Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10690 W. SIX MILE RD
NORTHVILLE MI 48168
d. Mailing Address: SAME
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature _____ Receipt Date _____

413
4-1-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163658
618924

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2680 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 05030 Units 4 Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdt
hazardous waste
Generator Authorized Agent Name

[Signature]
Signature

041113
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: LOU'S
b. Address: Pontiac MI
c. Driver Name/Title: Jim Goerdt
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 572
f. Vehicle License No./State: AC 22259 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 041113
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 041113
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10830 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48163
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#14
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163659

633874

Section I

GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
i. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil

k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt on
helf. uscg
Generator Authorized Agent Name Signature 04/11/13
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II

TRANSPORTER

TRANSPORTER I
a. Name: Lou's
b. Address: PawTroc MS
c. Driver Name/Title: Daniel McClelland
PRINT/TYPE
d. Phone No.: _____ e. Truck No.: 122
f. Vehicle License No./State: AB 93399

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TYPE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

g. [Signature] 04/11/13
Driver Signature Shipment Date

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III

DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL
b. Physical Address: 10880 W. SIX MILE RD
NORTHVILLE MI 48168

c. Phone No.: 248-348-7230
d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature 04/11/13
Receipt Date

#15
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163660
631947

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
i. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 50030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name Don Taylor Signature [Signature] Shipment Date 041113

Section II TRANSPORTER

TRANSPORTER I

a. Name: Law's Transport
b. Address: _____
c. Driver Name/Title: Don Taylor PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 371
f. Vehicle License No./State: AC 77537 MI

Acknowledgment of Receipt of Materials:

g. Driver Signature [Signature] Shipment Date 041113

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. Driver Signature _____ Shipment Date _____

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48169
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate

f. Name of Authorized Agent _____ Signature _____ Receipt Date _____

#16
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163661

632718

Section I

GENERATOR

(Generator completes all of Section I)

a. Generator Name: United States Coast Guard
c. Address: 2800 Atwater
Detroit, MI 48207
e. Phone No.: _____

b. Generating Location: _____
d. Address: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: MI 887 140328

h. Owner's Phone No.: AH5296 515

h. WASTE CODE Contaminated Soil

j. Description of Waste _____

k. Quantity 00030 Units Y Type TR

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Generator Authorized Agent Name John J. Cooper

Signature [Signature]

Shipment Date 041113

Section II

TRANSPORTER

TRANSPORTER I

a. Name: Louis
b. Address: Pontiac MI
c. Driver Name/Title: Ram Smith
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 934
f. Vehicle License No./State: AC17792 MI

Acknowledgment of Receipt of Materials:

g. Ram Smith 041113
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III

DESTINATION

a. Site Name: AUS ARBOR HILLS LANDFILL
b. Physical Address: 10890 W. SIX MILE RD
NORTHVILLE, MI 48168

c. Phone No.: 248-348-7230
d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent _____ Signature _____ Receipt Date 041113

#17
4-11-13

27.94

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163662

TIN # 627374

Section I

GENERATOR

(Generator completes all of Section I)

a. Generator Name: 2880 Alwater
c. Address: Detroit, MI 48207
e. Phone No.: _____

b. Generating Location: _____
d. Address: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: MI 687 140328

h. Owner's Phone No.: AH5296 515

h. WASTE CODE Contaminated Soil

j. Description of Waste _____

k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Gerdson
Generator Authorized Agent Name

[Signature]
Signature

041113
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II

TRANSPORTER

TRANSPORTER I

a. Name: LOU'S
b. Address: Pontiac MI
c. Driver Name/Title: STEVE SHEFFIELD
PRINT/TYPE
d. Phone No.: _____ e. Truck No.: 837
f. Vehicle License No./State: AA 46747

Acknowledgment of Receipt of Materials:

g. [Signature] 041113
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TYPE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 041113
Driver Signature Shipment Date

Section III

DESTINATION

a. Site Name: AUS ARBOR HILLS LANDFILL
b. Physical Address: 10580 W. SIX MILE RD
NORTHVILLE, MI 48168

c. Phone No.: 248-348-7230
d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate

f. _____
Name of Authorized Agent Signature

Receipt Date

NON-HAZARDOUS
SPECIAL WASTE MANIFEST

4163663

618435

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
i. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt on
behalf of USCG
Generator Authorized Agent Name

Signature

041113
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: Lou's
b. Address: Pontiac MI
c. Driver Name/Title: Jim Schmitt
d. Phone No.: _____ e. Truck No.: 572
f. Vehicle License No./State: AC22259 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 041112
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 041112
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10890 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature

041112
Receipt Date

#19
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

29.09

4163664

633875

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard Same
b. Generating Location: _____
c. Address: 2600 Atwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil

k. Quantity 00030 Units Y Type FR

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdit on
behalf of USCG

Generator Authorized Agent Name

Signature

041113
Shipment Date

Section II TRANSPORTER

TRANSPORTER I

a. Name: Lou's
b. Address: Pontiac MI
c. Driver Name/Title: Daniel McClelland
PRINT/TYPE
d. Phone No.: _____ e. Truck No.: 122
f. Vehicle License No./State: AR 93399

Acknowledgment of Receipt of Materials:

g. DJ McClelland 041113
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TYPE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL
b. Physical Address: 10800 W. SIX MILE RD
NORTHVILLE, MI 48168

c. Phone No.: 248-349-7230
d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate

f. _____
Name of Authorized Agent Signature

Receipt Date

#20
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

30⁷⁸

4163666
631948

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2680 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goardton
behalf of USCG
Generator Authorized Agent Name

[Signature]
Signature

041113
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: Lou's
b. Address: Pow T. Ave MI.
c. Driver Name/Title: Don Thacker
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 371
f. Vehicle License No./State: AC 77537

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

Acknowledgment of Receipt of Materials:

g. [Signature] 041113
Driver Signature Shipment Date

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#21
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

29.73

4163667
632719

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
i. WASTE CODE MI 687 140328 AH5296 515

j. Description of Waste Contaminated Soil k. Quantity 20030 Units Y Type TR
TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt on 04/11/13
Generator Authorized Agent Name Signature Shipment Date
UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: LOU'S
b. Address: PONTIAC MI
c. Driver Name/Title: Ronnie Smith PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 934
f. Vehicle License No./State: AC17792 MI
TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

Acknowledgment of Receipt of Materials:

g. Ron Smith 04/11/13
Driver Signature Shipment Date
n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168

e. TICKET No.: _____
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#22
4-11-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

28.73

4163668
610920

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:
g. Owner's Name: _____ h. Owner's Phone No.: _____

h. WASTE CODE MI 687 140328 AH5296 516

j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR
TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.
Jim Goerdon
Generator Authorized Agent Name Signature 041113 Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: _____
b. Address: _____
c. Driver Name/Title: Jim Schrock PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 572
f. Vehicle License No./State: AC 22259 MI.
Acknowledgment of Receipt of Materials:
g. [Signature] 041113 Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials:
n. _____ 041113 Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48169

e. TICKET No.: _____
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ Signature _____ Receipt Date _____
Name of Authorized Agent

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163015

714 632147

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2860 Abwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity _____ Units _____ Type _____

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, If the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdon [Signature] 041213
Generator Authorized Agent Name Signature Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: Lou's Transport h. Name: _____
b. Address: Pontiac, MI i. Address: _____
c. Driver Name/Title: Steve Sh. [Signature] / DRIVER j. Driver Name/Title: _____
PRINT/TITLE PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 937 k. Phone No.: _____ l. Truck No.: _____
f. Vehicle License No./State: _____ m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials: Acknowledgment of Receipt of Materials:
g. [Signature] 041213 n. _____
Driver Signature Shipment Date Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48169
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate

f. _____
Name of Authorized Agent Signature Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163016
628760

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard Same
b. Generating Location: _____
c. Address: 2660 Atwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 24 Units ✓ Type TK

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdon
USCG
Generator Authorized Agent Name Signature

041213
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: Lee's Transport
b. Address: 1780 Highland
Portiac, MI
c. Driver Name/Title: GARY FORSYTH PRINT/TITLE
d. Phone No.: 332-5687 e. Truck No.: 22
f. Vehicle License No./State: AA5180Z

Acknowledgment of Receipt of Materials:

g. GARY FORSYTH 041213
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 041213
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10890 W. SIX MILE RD
NORTHVILLE MI 48169
d. Mailing Address: SAME
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

4163017

Section II		TRANSPORTER	
TRANSPORTER I		TRANSPORTER II	
<p>a. Name: <u>LOUIS</u></p> <p>b. Address: <u>PO BOX</u></p> <p>c. Driver Name/Title: <u>SIM BUCKNER</u> <small>PRINT/TYPE</small></p> <p>d. Phone No.: _____ e. Truck No.: <u>215</u></p> <p>f. Vehicle License No./State: <u>AC 7225G</u></p> <p>Acknowledgment of Receipt of Materials:</p> <p>g. _____</p>	<p>h. Name: _____</p> <p>i. Address: _____</p> <p>j. Driver Name/Title: _____ <small>PRINT/TYPE</small></p> <p>k. Phone No.: _____ l. Truck No.: _____</p> <p>m. Vehicle License No./State: _____</p> <p>Acknowledgment of Receipt of Materials:</p> <p>n. _____</p>		
<div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;">4</div> <div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;">1</div> <div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;">2</div> <div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;">1</div> <div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;">3</div>	<div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px solid black; display: inline-block; text-align: center; width: 40px; height: 40px; margin-bottom: 5px;"></div>		
<small>Driver Signature</small>	<small>Shipment Date</small>		

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GENERATOR RETAIN

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163018
633753

Section I

GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard Same
b. Generating Location: Same
c. Address: 2660 Atwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil
k. Quantity Units Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt on
behalf of USCG
Generator Authorized Agent Name [Signature] Shipment Date 041213

Section II

TRANSPORTER

a. Name: Louis Transport
b. Address: 1750 Highway 1
c. Driver Name/Title: [Signature] PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 53
f. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

g. [Signature] Castillo Shipment Date 041213
Driver Signature

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ Shipment Date _____
Driver Signature

Section III

DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10620 W. SIX MILE RD
NORTHVILLE MI 48163 d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. [Signature] mop 041213
Name of Authorized Agent Signature Receipt Date

1232045

NON-HAZARDOUS SPECIAL WASTE MANIFEST

632970
4163020

Section I

GENERATOR

(Generator completes all of Section I)

United States Coast Guard

Same

a. Generator Name: _____
c. Address: 2660 Ahwater
Detroit, MI 48207
e. Phone No.: _____

b. Generating Location: _____
d. Address: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____
h. WASTE CODE: MI 887 140328
j. Description of Waste: Contaminated Soil

h. Owner's Phone No.: AH5296 515

k. Quantity: [][][][][] Units: [] Type: []

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Gerdorf on
behalf of USCG

Signature

041213
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II

TRANSPORTER

TRANSPORTER I

a. Name: LOUIS TRANSPORT
b. Address: 1780 E Highland
Pontiac MI
c. Driver Name/Title: DAVE SCROGGINS
d. Phone No.: 248-332-5657 e. Truck No.: 571
f. Vehicle License No./State: AC22255

Acknowledgment of Receipt of Materials:

g. Dave Scroggin
Driver Signature

041213
Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature

Shipment Date

Section III

DESTINATION

a. Site Name: AUS ARBOR HILLS LANDFILL
b. Physical Address: 10660 W. SIX MILE RD
NORTHVILLE MI 48168

c. Phone No.: 248-349-7230
d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent

Signature

Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163021

TV# 632149

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2600 Alwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE M1 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goeldt on
behalf of USCG
Generator Authorized Agent Name Signature

041213
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: Lou's
b. Address: Pontiac MI
c. Driver Name/Title: Steve Sheffield DRIVER
d. Phone No.: _____ e. Truck No.: 837
f. Vehicle License No./State: AA 46747

Acknowledgment of Receipt of Materials:

g. Steve Sheffield 041213
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 041213
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10690 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature

041213
Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163022

5635 7/

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2600 Alwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____ f. Phone No.: _____
If owner of the generating facility differs from the generator, provide:
g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 087 140328 AH5296 515
j. Description of Waste Contaminated Soil
k. Quantity 00030 Units 4 Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdon
behalf of USCG
Generator Authorized Agent Name Signature 04/21/13
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: Lou's
b. Address: Pontiac MI
c. Driver Name/Title: Jim Buchanan
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 285
f. Vehicle License No./State: AC 22256
Acknowledgment of Receipt of Materials:
g. [Signature] 01/21/13
Driver Signature Shipment Date
TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials:
n. _____ 01/21/13
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10890 W. SIX MILE RD
NORTHVILLE, MI 48188
d. Mailing Address: SAME

e. TICKET No.: _____
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature 01/21/13
Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163023

628761

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2680 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00030 Units 4 Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdt on Signature 041213
Generator Authorized Agent Name Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: Lou's Transport h. Name: _____
b. Address: Pontiac MI i. Address: _____
1780 Highway
c. Driver Name/Title: GARY FORSYTH j. Driver Name/Title: _____
PRINT/TITLE PRINT/TITLE
d. Phone No.: 332 5687 e. Truck No.: 22 k. Phone No.: _____ l. Truck No.: _____
f. Vehicle License No./State: AA 51802 m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials: Acknowledgment of Receipt of Materials:
g. Gary Forsyth 041213 n. _____
Driver Signature Shipment Date Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10890 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48169
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163058

633889

Section I

GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same

c. Address: 2660 Atwater
Detroit, MI 48207 d. Address: _____

e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____

i. WASTE CODE: M1 687 140328 AH5296 515

j. Description of Waste: Contaminated Soil k. Quantity: 00030 Units: Y Type: TR

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: Jim Goerdt on Signature: [Signature] Shipment Date: 04/21/13

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II

TRANSPORTER

TRANSPORTER I

a. Name: LOU'S h. Name: _____

b. Address: Pontiac MI i. Address: _____

c. Driver Name/Title: bsp j. Driver Name/Title: _____
PRINT/TYPE PRINT/TYPE

d. Phone No.: _____ e. Truck No.: 53 k. Phone No.: _____ l. Truck No.: _____

f. Vehicle License No./State: AC 27246 MI m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials: Acknowledgment of Receipt of Materials:

g. Driver Signature: [Signature] Shipment Date: 04/21/13 n. Driver Signature: _____ Shipment Date: _____

Section III

DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 249-349-7230

b. Physical Address: 10890 W. SIX MILE RD.
NORTHVILLE, MI 48168 d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent: _____ Signature: _____ Receipt Date: _____

NON-HAZARDOUS SPECIAL WASTE MANIFEST

632968
4163059
1231927

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2000 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 20.87 Units DR Type TR

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goardt on behalf of USCG Signature 041213 Shipment Date
Generator Authorized Agent Name

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: LOU'S
b. Address: Pontiac MI
1780 E Highwood
c. Driver Name/Title: DAVE SCROGGINS
d. Phone No: 248-332-5687 e. Truck No.: 571
f. Vehicle License No./State: AC22258

Acknowledgment of Receipt of Materials:

g Dave Scroggins 041213
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10000 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48169
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ Signature 4/12/13 Receipt Date
Name of Authorized Agent

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163060

631811

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard Same
b. Generating Location: _____
c. Address: 2680 Atwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____
f. Phone No.: _____
If owner of the generating facility differs from the generator, provide:
g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil
k. Quantity 24 Units Y Type 72

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt on
behalf of USCG
Generator Authorized Agent Name

Signature

09/2/13
Shipment Date

Section II TRANSPORTER

TRANSPORTER I
a. Name: Blue Transport Inc
b. Address: 1750 E. Wickenburg
Leet, AZ 85306
c. Driver Name/Title: J. J. J. J. PRINT/TITLE
d. Phone No.: 248-322-1687 Truck No.: 941
f. Vehicle License No./State: AZ 24631

Acknowledgment of Receipt of Materials:

g. [Signature] 09/2/13
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 09/2/13
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL
b. Physical Address: 10890 W. SIX MILE RD
NORTHVILLE MI 48168

c. Phone No.: 248-348-7230
d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature

09/2/13
Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163061

Fix # 632148

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2880 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity _____ Units _____ Type _____

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdt on
behalf of USCG
Generator Authorized Agent Name

Signature

04/21/3
Shipment Date**Section III TRANSPORTER**

TRANSPORTER I
a. Name: Lois Transport
b. Address: Pond, MI
c. Driver Name/Title: J. F. Hill / DRIVER
d. Phone No.: _____ e. Truck No.: 237
f. Vehicle License No./State: AA416747

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

Acknowledgment of Receipt of Materials:

g. [Signature] 04/21/3
Driver Signature Shipment Date

n. _____ 04/21/3
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10880 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature

04/21/3
Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163062

628750

Section I

GENERATOR

(Generator completes all of Section I)

a. Generator Name: United States Coast Guard
c. Address: 2000 Alwater
Detroit, MI 48207
e. Phone No.: _____

b. Generating Location: _____
d. Address: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____
h. WASTE CODE MI 887 140328
j. Description of Waste Contaminated Soil

k. Quantity 24 Units TR Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt on
behalf of USCG
Generator Authorized Agent Name _____ Signature _____

041213
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II

TRANSPORTER

TRANSPORTER I

a. Name: Low's Transport
b. Address: 1780 Highland
Pontiac MI
c. Driver Name/Title: GARY FORESTH
d. Phone No.: 332 5687 e. Truck No.: 22
f. Vehicle License No./State: AA 51802

Acknowledgment of Receipt of Materials:

g. Gary Foresth 041213
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature Shipment Date

Section III

DESTINATION

a. Site Name: ALB ARBOR HILLS LANDFILL
b. Physical Address: 10680 W. SIX MILE RD
NORTHVILLE, MI 48168

c. Phone No.: 248-340-7230
d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature

Receipt Date

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163063

~~4163063~~

Section I GENERATOR (Generator completes all of Section I)									
a. Generator Name: <u>United States Coast Guard</u>	b. Generating Location: <u>Same</u>								
c. Address: <u>2680 Abwater</u> <u>Detroit, MI 48207</u>	d. Address: _____								
e. Phone No.: _____	f. Phone No.: _____								
If owner of the generating facility differs from the generator, provide:									
g. Owner's Name: _____	h. Owner's Phone No.: _____								
h. WASTE CODE <u>MI</u> <u>887</u> <u>140329</u> <u>AH5296</u> <u>516</u>									
j. Description of Waste <u>Contaminated Soil</u>	k. Quantity <table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Units <table border="1"><tr><td> </td></tr></table> Type <table border="1"><tr><td> </td><td> </td></tr></table>								
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations. AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.									
Generator Authorized Agent Name <u>Jim Gora</u>	Signature <u>[Signature]</u> Shipment Date <table border="1"><tr><td>0</td><td>4</td><td>1</td><td>2</td><td>1</td><td>3</td></tr></table>	0	4	1	2	1	3		
0	4	1	2	1	3				

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER													
TRANSPORTER I													
a. Name: <u>Lou S</u>	h. Name: _____												
b. Address: <u>Port</u>	i. Address: _____												
c. Driver Name/Title: <u>Jim Badier</u> PRINT/TITLE	j. Driver Name/Title: _____ PRINT/TITLE												
d. Phone No.: _____ e. Truck No.: <u>215</u>	k. Phone No.: _____ l. Truck No.: _____												
f. Vehicle License No./State: _____	m. Vehicle License No./State: _____												
Acknowledgment of Receipt of Materials:													
g. <u>[Signature]</u> <table border="1"><tr><td>0</td><td>4</td><td>1</td><td>2</td><td>1</td><td>3</td></tr></table> Driver Signature Shipment Date	0	4	1	2	1	3	n. <u>[Signature]</u> <table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table> Driver Signature Shipment Date						
0	4	1	2	1	3								

Section III DESTINATION							
a. Site Name: <u>ADS ARBOR HILLS LANDFILL</u>	c. Phone No.: <u>248-349-7230</u>						
b. Physical Address: <u>10890 W. SIX MILE RD</u> <u>NORTHVILLE, MI 48163</u>	d. Mailing Address: <u>SAME</u>						
e. TICKET No.: _____							
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.							
f. Name of Authorized Agent _____ Signature _____	Receipt Date <table border="1"><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>						

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163064
633 946

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2600 Atwater
Detroit, MI 48207
d. Address: _____
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 28845 Units 7 Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Gordin
Generator Authorized Agent Name Signature 041213 Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: Les's Transport
b. Address: 1740 Highland
c. Driver Name/Title: Lee PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 53
f. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials:
g. Lee 041213
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials:
n. _____ 041213
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10680 W. SIX MILE RD
NORTHVILLE, MI 48169 d. Mailing Address: SAME

e. TICKET No.: _____
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature _____ Receipt Date

#1
4-17-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163024

Section I **GENERATOR** (Generator completes all of Section I)

a. Generator Name: 2880 Atwater
c. Address: Detroit, MI 48207
e. Phone No.: _____
b. Generating Location: Same
d. Address: _____
f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: MI 887 140328
h. WASTE CODE: Contaminated Soil
j. Description of Waste: _____
h. Owner's Phone No.: AH5296 515
k. Quantity: 00028 Units: Y Type: TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Goerdon
Generator Authorized Agent Name

[Signature]
Signature

041713
Shipment Date

Section II **TRANSPORTER**

TRANSPORTER I
a. Name: H. McEniro
b. Address: Mt. Clemens
c. Driver Name/Title: Loren Black
d. Phone No.: 810 650 3626 e. Truck No.: 109
f. Vehicle License No./State: AA 92177 MI

Acknowledgment of Receipt of Materials:

g. [Signature]
Driver Signature

041713
Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____
Driver Signature

Shipment Date

Section III **DESTINATION**

a. Site Name: ABS ARBOR HILLS LANDFILL
b. Physical Address: 10880 W. SIX MILE RD
NORTHVILLE, MI 48168
c. Phone No.: 248-348-7230
d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent

Signature

Receipt Date

#2
4-17-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163025

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2680 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 687 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00028 Units 4 Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt on
behalf of USCG Signature 041713 Shipment Date
Generator Authorized Agent Name

Section II TRANSPORTER

TRANSPORTER I
a. Name: H. Mi Enviro.
b. Address: M.T. Clemens MI.
c. Driver Name/Title: Loren Bluh PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 109
f. Vehicle License No./State: AA 92177 MI
Acknowledgment of Receipt of Materials:
g. [Signature] 041713 Shipment Date
Driver Signature

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____
Acknowledgment of Receipt of Materials:
n. _____ 041713 Shipment Date
Driver Signature

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 10820 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ 041713 Receipt Date
Name of Authorized Agent Signature

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163026

Section I

GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 087 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00028 Units Y Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt on
Generator Authorized Agent Name

[Signature]
Signature

041713
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II

TRANSPORTER

TRANSPORTER I
a. Name: H. M. Guino
b. Address: MT. Clemens MI
c. Driver Name/Title: Loren Black PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 109
f. Vehicle License No./State: AA 92177

Acknowledgment of Receipt of Materials:

g. [Signature] 041713
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____ PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 041713
Driver Signature Shipment Date

Section III

DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10880 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48169
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____ 041713
Name of Authorized Agent Signature Receipt Date

44
4-17-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163027

Section I **GENERATOR** (Generator completes all of Section I)

a. Generator Name: United States Coast Guard
c. Address: 2880 Atwater
Detroit, MI 48207

b. Generating Location: Same
d. Address: _____

e. Phone No.: _____

f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____
h. WASTE CODE MI 687 140328

h. Owner's Phone No.: _____
AH5296 515

j. Description of Waste Contaminated Soil

k. Quantity 00028 Units 4 Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdt on
behalf of USCG
Generator Authorized Agent Name Signature

041713
Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II **TRANSPORTER**

TRANSPORTER I

a. Name: H. M. Gourd
b. Address: MT. Clemens MI
c. Driver Name/Title: JACK R.
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 124
f. Vehicle License No./State: RA 62107 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 41713
Driver Signature Shipment Date

TRANSPORTER II

h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 41713
Driver Signature Shipment Date

Section III **DESTINATION**

a. Site Name: AUS ARBOR HILLS LANDFILL
b. Physical Address: 10890 W. SIX MILE RD
NORTHVILLE, MI 48168

c. Phone No.: 248-340-7230
d. Mailing Address: SAME

e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature

41713
Receipt Date

85
4-17-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163028

Section I **GENERATOR** (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2660 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____
If owner of the generating facility differs from the generator, provide:
g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00028 Units 4 Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Jim Gault on
behalf of USCG
Generator Authorized Agent Name

Signature

041713
Shipment Date

Section II **TRANSPORTER**

TRANSPORTER I
a. Name: H. M. Ewens
b. Address: MT. CLEMENS MI
c. Driver Name/Title: Loren Black
PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 109
f. Vehicle License No./State: AA 92177 MI

Acknowledgment of Receipt of Materials:

g. [Signature] 041713
Driver Signature Shipment Date

TRANSPORTER II
h. Name: _____
i. Address: _____
j. Driver Name/Title: _____
PRINT/TITLE
k. Phone No.: _____ l. Truck No.: _____
m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

n. _____ 041713
Driver Signature Shipment Date

Section III **DESTINATION**

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-349-7230
b. Physical Address: 10890 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE, MI 48189
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

#6
4-17-13

NON-HAZARDOUS SPECIAL WASTE MANIFEST

4163029

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: United States Coast Guard b. Generating Location: Same
c. Address: 2860 Atwater d. Address: _____
Detroit, MI 48207
e. Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____
h. WASTE CODE MI 887 140328 AH5296 515
j. Description of Waste Contaminated Soil k. Quantity 00028 Units 4 Type TR

TYPE
DM - METAL DRUM
DP - PLASTIC DRUM
DF - FIBRE DRUM
B - BAG
TR - TRUCK
O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations: AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Jim Goerdon [Signature] 041713
Generator Authorized Agent Name Signature Shipment Date

UNITS
P - POUNDS
Y - YARDS
T - TONS
Y3 - CUBIC YARDS
O - OTHER

Section II TRANSPORTER

TRANSPORTER I
a. Name: H.M. Kiviro h. Name: _____
b. Address: Mt. Clemens M. i. Address: _____
c. Driver Name/Title: JACK R j. Driver Name/Title: _____
PRINT/TITLE PRINT/TITLE
d. Phone No.: _____ e. Truck No.: 124 k. Phone No.: _____ l. Truck No.: _____
f. Vehicle License No./State: RA 62107 MI m. Vehicle License No./State: _____

Acknowledgment of Receipt of Materials:

[Signature] 41713
Driver Signature Shipment Date

Acknowledgment of Receipt of Materials:

[Signature] _____
Driver Signature Shipment Date

Section III DESTINATION

a. Site Name: ADS ARBOR HILLS LANDFILL c. Phone No.: 248-348-7230
b. Physical Address: 18800 W. SIX MILE RD d. Mailing Address: SAME
NORTHVILLE MI 48168
e. TICKET No.: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. _____
Name of Authorized Agent Signature Receipt Date

ARBOR HILLS LAB.
10690 W SIX MILE F
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1230820	43967	
TRUCK			CONTAINER	LICENSE	
TKMS004					
REFERENCE				IN	OUT
4163065				4/9/13 8:19 am	4/9/13 8:19 am

CONTRACT: AH5296

BOL:

GROSS 150,580.00LBS Scale In
TARE 52,720.00LBS Tare Out
NET 97,860.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
48.93	TN	Contaminated Soils (Ext)	WA	100.00			

Total
Paid
Change
Check #
Recpt #

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

CUSTOMER COPY

4/13

12:11

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1230819	66750	
TRUCK		CONTAINER		LICENSE	
TKMS002					
REFERENCE				IN	OUT
416 3066				4/9/13 8:19 am	4/9/13 8:19 am

CONTRACT: AH5296

BOL:

GROSS 141,620.00LBS Scale In
TARE 52,280.00LBS Tare Out
NET 89,340.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
44.67	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1230822	43967
TRUCK		CONTAINER	LICENSE
TKMS26*			
REFERENCE			IN
4163067			4/9/13 8:26 am
			OUT
			4/9/13 8:26 am

CONTRACT: AH5296

BOL:

GROSS 149,620.00LBS Scale In
TARE 54,360.00LBS Tare Out
NET 95,260.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
47.63	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

Total
Paid
Change
Check #
Recpt #

SIGNATURE: _____

CUSTOMER COPY:

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM/ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1230899	43967
TRUCK		CONTAINER	LICENSE
TKMS004			
REFERENCE			IN
4163068			4/9/13 10:33 am
			4/9/13 10:33 am

CONTRACT: AH5296

BOL:

GROSS 147,660.00LBS Scale In
TARE 52,720.00LBS Tare Out
NET 94,940.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
47.47	TN	Contaminated Soils (Ext)	WA	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: Brad

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1230910	43967
TRUCK		CONTAINER	LICENSE
TKMS002			
REFERENCE			IN OUT
4163069			4/9/13 10:43 am 4/9/13 10:43 am

CONTRACT: AH5296

BOL:

GROSS 130,960.00LBS Scale In
TARE 52,280.00LBS Tare Out
NET 78,680.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
39.34	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: 

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1230924	43967	
TRUCK		CONTAINER		LICENSE	
TKMS26*					
REFERENCE				IN	OUT
4163070				4/9/13 11:04 am	4/9/13 11:04 am

CONTRACT: AH5296

BOL:

GROSS 153,180.00LBS Scale In
TARE 54,360.00LBS Tare Out
NET 98,820.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
49.41	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Leonard

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #		OPERATOR
01			1231000		43967
TRUCK			CONTAINER		LICENSE
TKMS004					
REFERENCE				IN	OUT
4163071				4/9/13 12:49 pm	4/9/13 12:49 pm

CONTRACT: AH5296

BOL:

GROSS 146,200.00LBS Scale In
TARE 52,720.00LBS Tare Out
NET 93,480.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
46.74	TN	Contaminated Soils (Ext)	WA	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: Brad

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

**INVOICE
INBOUND**

SITE	CELL	TICKET #	OPERATOR	
01		1231010	66750	
TRUCK		CONTAINER	LICENSE	
TKMS002				
REFERENCE			IN	OUT
4163072			4/9/13 1:00 pm	4/9/13 1:00 pm

CONTRACT: AH5296

BOL:

GROSS	156,340.00LBS	Scale In
TARE	52,280.00LBS	Tare Out
NET	104,060.00 LBS	

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
52.03	TN	Contaminated Soils (Ext)	WY	100.00			

**Total
Paid
Change
Check#
Recpt #**

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004623
VESNA PURCHASING & SHARED SERVICE CENTER
15 S 84TH ST STE 175
30420 FORD STERLING
MILWAUKEE, WI 53214

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1231027	66750	
TRUCK		CONTAINER		LICENSE	
TKMS26*					
REFERENCE				IN	OUT
4163073				4/9/13 1:25 pm	4/9/13 1:25 pm

CONTRACT: AH5196			GROSS 162,500.00LBS Scale In				
BOL:			TARE 52,500.00LBS Tare Out				
			NET 110,000.00 LBS				
QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
40.00	FY	C&D BY YARD (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1231084	43967
TRUCK		CONTAINER	LICENSE
TKMS004			
REFERENCE			IN
4163074			4/9/13 2:54 pm
			OUT
			4/9/13 2:54 pm

CONTRACT: AH5296

BOL:

GROSS 142,040.00LBS Scale In
TARE 52,720.00LBS Tare Out
NET 89,320.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
44.66	TN	Contaminated Soils (Ext)	WA	100.00			

Total
Paid
Change
Check #
Recpt #

CUSTOMER COPY

200

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: Brad

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231102	66750	
TRUCK		CONTAINER	LICENSE	
TKMS002				
REFERENCE			IN	OUT
4163075			4/9/13 3:13 pm	4/9/13 3:13 pm

CONTRACT: AH5296

BOL:

GROSS 151,120.00LBS Scale In
TARE 52,280.00LBS Tare Out
NET 98,840.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
49.42	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

SIGNATURE: _____

I hereby certify that this load does not contain any unauthorized hazardous waste.

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1231127	43967
TRUCK		CONTAINER	LICENSE
TKMS26*			
REFERENCE			IN
4163076			4/9/13 3:50 pm
			4/9/13 3:50 pm

CONTRACT: AH5296

BOL:

GROSS 165,660.00LBS Scale In
TARE 52,500.00LBS Tare Out
NET 113,160.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
56.58	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: Leonard

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1231096	66750
TRUCK		CONTAINER	LICENSE
HM121-30			
REFERENCE			IN OUT
4163077			4/9/13 2:41 pm 4/9/13 3:06 pm

CONTRACT: AH5296

BOL:

GROSS 92,540.00LBS Scale In
TARE 42,000.00LBS Scale Out
NET 50,540.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
25.27	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: 

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231221	43967	
TRUCK		CONTAINER	LICENSE	
TKMS004				
REFERENCE			IN	OUT
4163078			4/10/13 8:07 am	4/10/13 8:07 am

CONTRACT: AH5296

BOL:

GROSS 166,940.00LBS Scale In
TARE 52,720.00LBS Tare Out
NET 114,220.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
57.11	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____



Total
Paid
Change
Check #
Recpt #

CUSTOMER COPY

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

**INVOICE
INBOUND**

SITE	CELL	TICKET #	OPERATOR	
01		1231235	43967	
TRUCK		CONTAINER	LICENSE	
TKMS002				
REFERENCE			IN	OUT
4163079			4/10/13 8:20 am	4/10/13 8:20 am

CONTRACT: AH5296
BOL:

GROSS	159,220.00LBS	Scale In
TARE	52,280.00LBS	Tare Out
NET	106,940.00 LBS	

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
53.47	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE:

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1231247	66750
TRUCK		CONTAINER	LICENSE
TKMS26*			
REFERENCE			IN OUT
4163080			4/10/13 8:40 am 4/10/13 8:40 am

CONTRACT: AH5296

BOL:

GROSS 158,620.00LBS Scale In
TARE 52,500.00LBS Tare Out
NET 106,120.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
53.06	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check #
Recpt #

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

CUSTOMER COPY:

7/13
1 a.m.

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231313	43967	
TRUCK		CONTAINER	LICENSE	
TKMS004				
REFERENCE			IN	OUT
4163081			4/10/13 10:24 am	4/10/13 10:24 am

CONTRACT: AH5296

BOL:

GROSS 151,540.00LBS Scale In
TARE 52,720.00LBS Tare Out
NET 98,820.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
49.41	TN	Contaminated Soils (Ext)	WA	100.00			

Total
Paid
Change
Check#
Recpt #

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: Brad

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM-ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1231324	66750
TRUCK		CONTAINER	LICENSE
TKMS002			
REFERENCE			IN
4163082			4/10/13 10:39 am
			4/10/13 10:39 am

CONTRACT: AH5296

BOL:

GROSS 149,180.00LBS Scale In
TARE 52,280.00LBS Tare Out
NET 96,900.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
48.45	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check #
Recpt #

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

CUSTOMER COPY

7/13
9 am

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1231354	66750
TRUCK		CONTAINER	LICENSE
TKMS26*			
REFERENCE			IN OUT
4163083			4/10/13 11:25 am 4/10/13 11:25 am

CONTRACT: AH5296

BOL:

GROSS 159,940.00LBS Scale In
TARE 52,500.00LBS Tare Out
NET 107,440.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
53.72	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1231297	66750
TRUCK		CONTAINER	LICENSE
HM121-30			
REFERENCE			IN
4163084			4/10/13 10:05 am
			OUT
			4/10/13 10:05 am

CONTRACT: AH5296

BOL:

GROSS 100,500.00LBS Scale In
TARE 42,000.00LBS Tare Out
NET 58,500.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
29.25	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Pat

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231404	43967	
TRUCK		CONTAINER	LICENSE	
HM121-30				
REFERENCE			IN	OUT
4163085			4/10/13 12:25 pm	4/10/13 12:25 pm

CONTRACT: AH5296

BOL:

GROSS 95,120.00LBS Scale In
TARE 42,000.00LBS Tare Out
NET 53,120.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
26.56	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

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Total
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ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

REPRINT

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1231409	43967
TRUCK		CONTAINER	LICENSE
TKMS004			
REFERENCE			IN
4163086			4/10/13 12:37 pm
			OUT
			4/10/13 12:37 pm

CONTRACT: AH5296

BOL:

GROSS 127,900.00LBS Scale In
TARE 52,720.00LBS Tare Out
NET 75,180.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
37.59	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

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2483497230

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HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

SITE	CELL	TICKET #		OPERATOR	
01		1231428		43967	
TRUCK		CONTAINER		LICENSE	
TKMS002					
REFERENCE				IN	OUT
4163087				4/10/13 1:02 pm	4/10/13 1:02 pm

INVOICE
INBOUND

CONTRACT: AH3296
BOL:

GROSS 121,220.00LBS Scale In
TARE 52,280.00LBS Tare Out
NET 68,940.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
34.47	TN	Contaminated Soils (Ext)	WY	100.00			

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10690 W SIX MILE RD
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HM ENVIRONMENTAL (T)
42826 N WALNUT
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REPRINT

SITE		CELL	TICKET #	OPERATOR	
01			1231455	66750	
TRUCK		CONTAINER		LICENSE	
TKMS28"					
REFERENCE				IN	OUT
4163088				4/10/13 2:01 pm	4/10/13 2:01 pm

INVOICE
INBOUND

CONTRACT: AH5296

BOL:

GROSS 150,920.00LBS Scale In
TARE 52,500.00LBS Tare Out
NET 98,420.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
49.21	TN	Contaminated Soils (Ext)	WY	100.00			

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2483497230

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HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231487	66790	
TRUCK		CONTAINER	LICENSE	
TKMS004				
REFERENCE			IN	OUT
4163089			4/10/13 3:05 pm	4/10/13 3:05 pm

CONTRACT: AHS296

BOL:

GROSS 153,340.00LBS Scale In
TARE 53,720.00LBS Tare Out
NET 100,620.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
50.31	TN	Contaminated Soils (Ext)	WA	100.00			

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10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

SITE	CELL	TICKET #	OPERATOR	
01		1231484	66750	
TRUCK		CONTAINER	LICENSE	
TKMS002				
REFERENCE			IN	OUT
4163090			4/10/13 3:29 pm	4/10/13 3:25 pm

INVOICE
INBOUND

CONTRACT: AHS296

BOL:

GROSS 146,320.00LBS Scale In
TARE 52,280.00LBS Tare Out
NET 94,040.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
47.02	TN	Contaminated Soils (Ext)	WY	100.00			

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10690 W SIX MILE RD,
NORTHVILLE, MI 48168
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HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1231472	43967	
TRUCK			CONTAINER	LICENSE	
HM121-30					
REFERENCE				IN	OUT
4163091				4/10/13 2:36 pm	4/10/13 2:36 pm

CONTRACT: AH5296

BOL:

GROSS 93,280.00LBS Scale In
TARE 42,000.00LBS Tare Out
NET 51,280.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
25.64	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check #
Recpt #

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10690 W SIX MILE RD
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004671
HM/ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231587	66750	
TRUCK		CONTAINER	LICENSE	
LOU572				
REFERENCE			IN	OUT
4163092			4/11/13 8:00 am	4/11/13 8:00 am

CONTRACT: AH5296

BOL:

GROSS 90,400.00LBS Scale In
TARE 42,520.00LBS Tare Out
NET 47,880.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
23.94	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check #
Recpt #

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NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1231592	66750	
TRUCK			CONTAINER	LICENSE	
LOU848					
REFERENCE				IN	OUT
4163093				4/11/13 8:14 am	4/11/13 8:14 am

CONTRACT: AH5296

BOL:

GROSS 90,320.00LBS Scale In
TARE 41,280.00LBS Tare Out
NET 49,040.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
24.52	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

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SIGNATURE: _____

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

REPRINT

SITE		CELL	TICKET #	OPERATOR	
01			1231609	66750	
TRUCK		CONTAINER		LICENSE	
LOU122					
REFERENCE				IN	OUT
4163094				4/11/13 8:22 am	4/11/13 8:46 am

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

CONTRACT: AH5296

BOL:

GROSS 90,580.00LBS Scale In
TARE 43,000.00LBS Scale Out
NET 47,580.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
23.79	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

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10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1231602	66750	
TRUCK		CONTAINER		LICENSE	
LOU371					
REFERENCE				IN	OUT
4163095				4/11/13 8:34 am	4/11/13 8:34 am

CONTRACT: AH5296

BOL:

GROSS 94,780.00LBS Scale In
TARE 42,780.00LBS Tare Out
NET 52,000.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
26.00	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE:

Total
Paid
Change
Check #
Recpt #

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10690 W SIX MILE RD
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2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1231628	66750	
TRUCK		CONTAINER		LICENSE	
LOU934-L					
REFERENCE				IN	OUT
4163096				4/11/13 9:21 am	4/11/13 9:21 am

CONTRACT: AH5296

BOL:

GROSS 90,460.00LBS Scale In
TARE 42,160.00LBS Tare Out
NET 48,300.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
24.15	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Ron

Total
Paid
Change
Check#
Recpt #

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2483497230

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42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

<u>TIX# 687372</u>				
SITE	CELL	TICKET #	OPERATOR	
01		1231634	66750	
TRUCK		CONTAINER	LICENSE	
LOU837				
REFERENCE			IN	OUT
4163097			4/11/13 9:31 am	4/11/13 9:31 am

CONTRACT: AH5296

BOL:

GROSS 92,560.00LBS Scale In
TARE 42,620.00LBS Tare Out
NET 49,940.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
24.97	TN	Contaminated Soils (Ext)	WA	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: STEVE

Total
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Recpt #

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10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231656	66750	
TRUCK		CONTAINER	LICENSE	
LOU572				
REFERENCE			IN	OUT
4163098			4/11/13 10:02 am	4/11/13 10:02 am

CONTRACT: AH5296

BOL:

GROSS 92,560.00LBS Scale In
TARE 42,520.00LBS Tare Out
NET 50,040.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
25.02	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
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Change
Check #
Recpt #

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SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231727	66750	
TRUCK		CONTAINER	LICENSE	
LOU848				
REFERENCE			IN	OUT
4163099			4/11/13 11:59 am	4/11/13 11:59 am

CONTRACT: AH3296

BOL:

GROSS 94,620.00LBS Scale In
TARE 41,280.00LBS Tare Out
NET 53,340.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
28.67	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

Total
Paid
Change
Check#
Recpt #

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SIGNATURE: _____

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10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

633813				
SITE	CELL	TICKET #	OPERATOR	
01		1231674	66750	
TRUCK		CONTAINER	LICENSE	
LOU122				
REFERENCE			IN	OUT
4163654			4/11/13 10:34 am	4/11/13 10:34 am

CONTRACT: AH5296

BOL:

GROSS 99,220.00LBS Scale In
TARE 43,000.00LBS Tare Out
NET 56,220.00 LBS

2811

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
28.11	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: Pam

Total
Paid
Change
Check#
Recpt #

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ARBOR HILLS LANDFILL
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NORTHVILLE, MI 48168
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42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231677	66750	
TRUCK		CONTAINER	LICENSE	
LOU371				
REFERENCE			IN	OUT
4163655			4/11/13 10:40 am	4/11/13 10:40 am

CONTRACT: AH5296

BOL:

GROSS 95,440.00LBS Scale In
TARE 42,780.00LBS Tare Out
NET 52,660.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
26.33	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

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SIGNATURE: DON

I hereby certify that this load does not contain any unauthorized hazardous waste.

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

Lou's 632717

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #		OPERATOR
01			1231705		66750
TRUCK			CONTAINER		LICENSE
LOU934-L					
REFERENCE				IN	OUT
4163656				4/11/13 11:29 am	4/11/13 11:29 am

CONTRACT: AH5296

BOL:

GROSS 99,700.00LBS Scale In
TARE 42,160.00LBS Tare Out
NET 57,540.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
28.77	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Don

Total
Paid
Change
Check #
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10690 W SIX MILE RD
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2483497230

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42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

TICKET # 627373				
SITE	CELL	TICKET #	OPERATOR	
01		1231712	66750	
TRUCK		CONTAINER	LICENSE	
LOU837				
REFERENCE			IN	OUT
4161657			4/11/13 11:39 am	4/11/13 11:39 am

CONTRACT: AH5296

BOL:

GROSS 102,100.00LBS Scale In
TARE 42,620.00LBS Tare Out
NET 59,480.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
29.74	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Steve

Total
Paid
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10690 W SIX MILE RD
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2483497230

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42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231728	66750	
TRUCK		CONTAINER	LICENSE	
LOU572				
REFERENCE			IN	OUT
4163658			4/11/13 12:00 pm	4/11/13 12:00 pm

CONTRACT: AH5296

BOL:

GROSS 99,040.00LBS Scale In
TARE 42,520.00LBS Tare Out
NET 56,520.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
28.26	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
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ARBOR HILLS LANDFILL
10690 W SIX MILE RD
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004671
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42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

633874			
SITE	CELL	TICKET #	OPERATOR
01		1231759	66750
TRUCK		CONTAINER	LICENSE
LOU122			
REFERENCE			IN OUT
4163659			4/11/13 12:45 pm 4/11/13 12:45 pm

CONTRACT: AH5296

BOL:

GROSS 98,780.00LBS Scale In
TARE 43,000.00LBS Tare Out
NET 55,780.00LBS

27.89

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
27.89	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

DAN

Total
Paid
Change
Check #
Recpt #

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2483497230

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HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1231764	66750	
TRUCK			CONTAINER	LICENSE	
LOU371					
REFERENCE				IN	OUT
4163660				4/11/13 12:50 pm	4/11/13 12:50 pm

CONTRACT: AH5296

BOL:

GROSS 100,860.00LBS Scale In
TARE 42,780.00LBS Tare Out
NET 58,080.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
29.04	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

DON

Total
Paid
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Recpt #

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10690 W SIX MILE RD
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2483497230

632718

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42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #		OPERATOR	
01		1231783		66750	
TRUCK		CONTAINER		LICENSE	
LOU934-L					
REFERENCE				IN	OUT
4163661				4/11/13 1:31 pm	4/11/13 1:31 pm

CONTRACT: AH5296

GROSS 103,000.00LBS Scale In
TARE 42,160.00LBS Tare Out
NET 60,840.00LBS

BOL:

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
30.42	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Ran

Total
Paid
Change
Check #
Recpt #

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SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W 9TH MILE RD
NORTHVILLE, MI 48168
2483497230

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HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

INVOICE
INBOUND

SITE	CBL	TICKET #		OPERATOR	
01		1291790		43967	
TRUCK		CONTAINER		LICENSE	
LOU837					
REFERENCE				IN	OUT
4163662				4/11/13 1:43 pm	4/11/13 1:43 pm

CONTRACT: AHS296

BOL:

GROSS 97,600.00LBS Scale In
TARE 42,820.00LBS Tare Out
NET 54,880.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
27.49	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

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10690 W SIX MILE RD
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2483497230

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HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1231794	66750	
TRUCK		CONTAINER		LICENSE	
LOU572					
3		REFERENCE		IN	OUT
416.663				4/11/13 1:49 pm	4/11/13 1:49 pm

CONTRACT: AH5296

BOL:

GROSS 99,980.00LBS Scale In
TARE 42,520.00LBS Tare Out
NET 57,460.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
28.73	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

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SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231824	66750	
TRUCK		CONTAINER	LICENSE	
LOU122				
REFERENCE			IN	OUT
4163664			4/11/13 2:50 pm	4/11/13 2:50 pm

CONTRACT: AH5296

BOL:

GROSS 101,180.00LBS Scale In
TARE 43,000.00LBS Tare Out
NET 58,180.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
29.09	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

SIGNATURE: _____

ARBOR HILLS LANDFILL
10890 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42828 N WALNUT
MT CLEMENS, MI 48043

REPRINT

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231830	66750	
TRUCK		CONTAINER	LICENSE	
LOU371				
REFERENCE			IN	OUT
4163666			4/11/13 2:57 pm	4/11/13 2:57 pm

CONTRACT: AH5298

BOL:

GROSS 104,340.00LBS Scale In
TARE 42,780.00LBS Tare Out
NET 61,560.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
30.78	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
MM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231837	66790	
TRUCK		CONTAINER	LICENSE	
LOU934-L				
REFERENCE			IN	OUT
4163667			4/11/13 3:25 pm	4/11/13 3:28 pm

CONTRACT: AH5296

SOL:

GROSS 101,820.00LBS Scale In
TARE 42,160.00LBS Tare Out
NET 59,660.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
29.73	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48166
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

SITE		CELL	TICKET #	OPERATOR	
01			1231848	66750	
TRUCK		CONTAINER		LICENSE	
LOU572					
REFERENCE				IN	OUT
4163668				4/11/13 3:46 pm	4/11/13 3:46 pm

INVOICE
INBOUND

CONTRACT: AHS296

BOL:

GROSS 99,080.00 LBS Scale In
TARE 42,520.00 LBS Tare Out
NET 56,560.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
28.27	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

TK#632147			
SITE	CELL	TICKET #	OPERATOR
01		1232021	66750
TRUCK		CONTAINER	LICENSE
LOU837			
REFERENCE			IN OUT
4163015			4/12/13 10:30 am 4/12/13 10:30 am

CONTRACT: AH5296

BOL:

GROSS 100,320.00LBS Scale In
TARE 42,620.00LBS Tare Out
NET 57,700.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
28.85	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: Steve

ARBOR HILLS LANDFILL
10890 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1232037	43967
TRUCK		CONTAINER	LICENSE
TKMS22L			
REFERENCE			IN
4163016			4/12/13 10:57 am
			OUT
			4/12/13 10:57 am

CONTRACT: AH5296

BOL:

GROSS 91,800.00LBS Scale In
TARE 34,500.00LBS Tare Out
NET 57,100.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
28.55	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR
01		1232030	66750
TRUCK		CONTAINER	LICENSE
LOU215			
REFERENCE			IN
4163017			4/12/13 10:46 am
			OUT
			4/12/13 10:46 am

CONTRACT: AH5296

BOL:

GROSS 93,240.00 LBS Scale In
TARE 42,900.00 LBS Tare Out
NET 50,340.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
25.17	TN	Contaminated Soils (Ext)	WY	100.00			

County Fee
ENVIRONMENTAL FEE
FUEL FEE
MDEQ SURCHARGE - TON
Township Fee

Tax Total
\$4.91
\$6.54
\$13.22
\$9.06
\$4.50

Total
Paid
Change
Check#
Recpt #

FACILITY COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #		OPERATOR	
01		1232045		66750	
TRUCK		CONTAINER		LICENSE	
TKMS53					
REFERENCE				IN	OUT
4163018				4/12/13 11:06 am	4/12/13 11:06 am

CONTRACT: AH5296
BOL:

GROSS 94,560.00 LBS Scale In
TARE 53,920.00 LBS Tare Out
NET 40,640.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
20.32	TN	Contaminated Soils (Ext)	WY	100.00			

Tax Total
Total
County Fee \$3.96
Paid
ENVIRONMENTAL FEE \$5.28
Change
FUEL FEE \$10.67
Check #
MDEQ SURCHARGE - TON \$7.32
Recpt #
Township Fee \$3.63

FACILITY COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

ARBOR HILLS LANDFILL
10890 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

SITE		CELL	TICKET #	OPERATOR	
01			1232087	43967	
TRUCK		CONTAINER		LICENSE	
LOU571					
REFERENCE				IN	OUT
4163020				4/12/13 11:38 am	4/12/13 11:38 am

INVOICE
INBOUND

CONTRACT: AH5296
BOL:

GROSS 89,560.00 LBS Scale In
TARE 43,500.00 LBS Tare Out
NET 46,060.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
23.03	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42626 N WALNUT
MT CLEMENS, MI 48043

REPRINT

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1222099	66750	
TRUCK		CONTAINER	LICENSE	
LOU837				
REFERENCE			IN	OUT
4163021			4/12/13 12:31 pm	4/12/13 12:31 pm

CONTRACT: AH5296

BOL:

GROSS 96,520.00LBS Scale In
TARE 42,620.00LBS Tare Out
NET 53,900.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
26.95	TN	Contaminated Soils (Ext)	WA	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste,

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1232116	66750	
TRUCK		CONTAINER	LICENSE	
LOU213				
REFERENCE			IN	OUT
4163022			4/12/13 12:53 pm	4/12/13 12:53 pm

CONTRACT: AHS298

BOL:

GROSS 93,080.00LBS Scale In
TARE 42,900.00LBS Tare Out
NET 50,180.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
25.09	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

SITE		CELL	TICKET #	OPERATOR	
01			1232125	43967	
TRUCK		CONTAINER		LICENSE	
TKMS22					
REFERENCE				IN	OUT
4163023				4/12/13 1:06 pm	4/12/13 1:08 pm

INVOICE
INBOUND

CONTRACT: AH5296

BOL:

GROSS 106,220.00LBS Scale In
TARE 53,380.00LBS Tare Out
NET 52,840.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
26.42	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

Total
Paid
Change
Check#
Recpt #

SIGNATURE: _____

CUSTOMER COPY

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

REPRINT

SITE	CELL	TICKET #	OPERATOR	
01		1232136	66750	
TRUCK		CONTAINER	LICENSE	
TKMS83-L				
REFERENCE			IN	OUT
4163058			4/12/13 1:21 pm	4/12/13 1:21 pm

INVOICE
INBOUND

CONTRACT: AH5296

BOL:

GROSS 110,280.00LBS Scale In
TARE 42,760.00LBS Tare Out
NET 67,520.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
33.76	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

SIGNATURE: _____

SIGNATURE: _____

TOWNSHIP TCU

FACILITY COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

REPRINT

SITE	CELL	TICKET #	OPERATOR
01		1231027	43967
TRUCK		CONTAINER	LICENSE
LOU571			
REFERENCE			IN
4163059			4/12/13 8:16 am
			OUT
			4/12/13 8:16 am

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

CONTRACT: AH5296

BOL:

GROSS 105,240.00 LBS Scale In
TARE 43,500.00 LBS Tare Out
NET 61,740.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
30.87	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

Total
Paid
Change
Check#
Recpt #

SIGNATURE: _____

CUSTOMER COPY

SIGNATURE: _____

FACILITY COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

REPRINT

SITE	CELL	TICKET #	OPERATOR	
01		1231984	43967	
TRUCK		CONTAINER	LICENSE	
LOU804				
REFERENCE			IN	OUT
4163060			4/12/13 8:55 am	4/12/13 8:55 am

004671
HM ENVIRONMENTAL (T)
42626 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

CONTRACT: AH5296

BOL:

GROSS 98,700.00LBS Scale In
TARE 43,480.00LBS Tare Out
NET 55,220.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
27.61	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

Total
Paid
Change
Check#
Recpt #

SIGNATURE: _____

CUSTOMER COPY

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48188
2483497230

004671
HM ENVIRONMENTAL (T)
42626 N WALNUT
MT CLEMENS, MI 48043

REPRINT

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1231935	43967	
TRUCK		CONTAINER		LICENSE	
LOU837					
REFERENCE				IN	OUT
4163061				4/12/13 8:24 am	4/12/13 8:24 am

CONTRACT: AH5296

BOL:

GROSS 102,420.00LBS Scale In
TARE 42,620.00LBS Tare Out
NET 59,800.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
29.90	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

628759

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1231943	66750	
TRUCK		CONTAINER	LICENSE	
TKMS22L				
REFERENCE			IN	OUT
4163062			4/12/13 8:36 am	4/12/13 8:36 am

CONTRACT: AH5296
BOL:

GROSS 94,780.00 LBS Scale In
TARE 34,500.00 LBS Tare Out
NET 60,280.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
30.14	TN	Contaminated Soils (Ext)	WY	100.00			

Tax Total
\$5.88
\$7.84
\$15.83
\$10.85
\$5.39

Total
Paid
Change
Check#
Recpt #

FACILITY COPY

County Fee
ENVIRONMENTAL FEE
FUEL FEE
MDEQ SURCHARGE - TON
Township Fee

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

SIGNATURE: _____

FACILITY COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

REPRINT

SITE		CELL	TICKET #	OPERATOR	
01			1231940	43967	
TRUCK		CONTAINER		LICENSE	
LOU215					
REFERENCE				IN	OUT
4163063				4/12/13 6:32 am	4/12/13 8:32 am

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

CONTRACT: AH5296

BOL:

GROSS 98,880.00 LBS Scale In
TARE 42,900.00 LBS Tare Out
NET 55,980.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
27.99	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

Total
Paid
Change
Check#
Receipt #

SIGNATURE: _____

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #		OPERATOR
01			1231950		66750
TRUCK			CONTAINER		LICENSE
TKMS53-L					
REFERENCE				IN	OUT
4163064				4/12/13 8:47 am	4/12/13 8:47 am

CONTRACT: AH5296

BOL:

GROSS 99,660.00 LBS Scale In
TARE 42,760.00 LBS Tare Out
NET 56,900.00 LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
28.45	TN	Contaminated Soils (Ext)	WY	100.00			

County Fee
ENVIRONMENTAL FEE
FUEL FEE
MDEQ SURCHARGE - TON
Township Fee

Tax Total
\$5.55
\$7.40
\$14.94
\$10.24
\$5.09

Total
Paid
Change
Check#
Recpt #

FACILITY COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1233362	40219	
TRUCK		CONTAINER	LICENSE	
HM109-20M				
REFERENCE			IN	OUT
4163024			4/17/13 8:50 am	4/17/13 8:50 am

CONTRACT: AH5296
BOL:

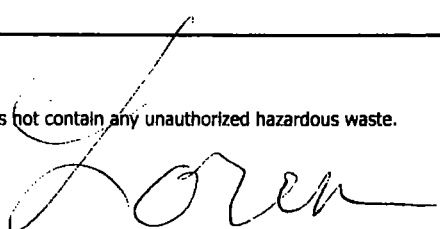
GROSS 104,180.00LBS Scale In
TARE 43,140.00LBS Tare Out
NET 61,040.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
30.52	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.


SIGNATURE: _____

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	
01		1233451	4021
TRUCK		CONTAINER	LICENSE
HM109-20M			
REFERENCE			IN OUT
4163025			4/17/13 11:05 am 4/17/13 11:05 am

CONTRACT: AH5296
BOL:

GROSS 104,120.00LBS Scale In
TARE 43,140.00LBS Tare Out
NET 60,980.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
30.49	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: 

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #		OPERATOR	
01		1233568		40219	
TRUCK		CONTAINER		LICENSE	
HM109-20M					
REFERENCE				IN	OUT
4163026				4/17/13 1:29 pm	4/17/13 1:29 pm

CONTRACT: AH5296
BOL:

GROSS 103,320.00LBS Scale In
TARE 43,140.00LBS Tare Out
NET 60,180.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
30.09	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: 

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #	OPERATOR	
01		1233612	40219	
TRUCK		CONTAINER	LICENSE	
HM124-20				
REFERENCE			IN	OUT
4163027			4/17/13 2:08 pm	4/17/13 2:08 pm

CONTRACT: AH5296

BOL:

GROSS 99,540.00LBS Scale In
TARE 42,820.00LBS Tare Out
NET 56,720.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
28.36	TN	Contaminated Soils (Ext)	WY	100.00			

I hereby certify that this load does not contain any unauthorized hazardous waste.

SIGNATURE: _____

Jack

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE		CELL	TICKET #	OPERATOR	
01			1233667	40219	
TRUCK		CONTAINER		LICENSE	
HM109-20M					
REFERENCE				IN	OUT
4163028				4/17/13 3:32 pm	4/17/13 3:32 pm

CONTRACT: AH5296

BOL:

GROSS 96,560.00LBS Scale In
TARE 43,140.00LBS Tare Out
NET 53,420.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
26.71	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

SIGNATURE: Loren

I hereby certify that this load does not contain any unauthorized hazardous waste.

ARBOR HILLS LANDFILL
10690 W SIX MILE RD
NORTHVILLE, MI 48168
2483497230

004671
HM ENVIRONMENTAL (T)
42826 N WALNUT
MT CLEMENS, MI 48043

INVOICE
INBOUND

SITE	CELL	TICKET #		OPERATOR	
01		1233681		40219	
TRUCK		CONTAINER		LICENSE	
HM124-20					
REFERENCE				IN	OUT
4163029				4/17/13 4:00 pm	4/17/13 4:00 pm

CONTRACT: AH5296
BOL:

GROSS 103,880.00LBS Scale In
TARE 42,820.00LBS Tare Out
NET 61,060.00LBS

QTY	UNIT	DESCRIPTION	ORIGIN	%	RATE	TAX	TOTAL
30.53	TN	Contaminated Soils (Ext)	WY	100.00			

Total
Paid
Change
Check#
Recpt #

CUSTOMER COPY

SIGNATURE: _____

Jack

I hereby certify that this load does not contain any unauthorized hazardous waste.

CONCRETE DISPOSAL DOCUMENTATION

#4

RECYCLED AGG - FISHKINDY PARK

Plant: 3616
Date: 4/9/2013
Customer: 03390
Name: H.M. ENVIRONMENTAL SERVICES, INC.
Location: 1

Time: 08:14

Invoice #: 236049

Stock #: H1121

H.M. ENVIRONMENTAL

I hereby certify that aggregate delivered from ADDY 02-25 meets specification requirements, for stated Michigan section and contains quantity stated.

Signature

Picked Up

Job: 3616-05863 02 COAST CORP

Phone: 734-400-0000

Name/Title: CWT 000000 TW 400000 NO 30000

Product: 000 PER GALE DROP OFF

0.00 Check #

POUNDS: TONS

TONNES

GROSS:

NET:

0.00

Cumulative Prior Ticket: 0.00

Cumulative This Ticket: 0.00

Driver Name: [Signature]

Weighted by: H.M. ENVIRONMENTAL

38680

E

BOOKS BY THE AUTHOR

THE GREAT GATSBY

0794187-1 OCT 31 1965

References

实验原理

DISCUSSION

5196L-4-301101

44-38861-610-0

THE END OF THE LINE

1990年12月10日 (星期四) 1990年12月10日 (星期四) 1990年12月10日 (星期四)

REPORT

000001 154001 50 69950-8199 0000

July 1947

9. 13. 13. 11. 1

2041246-849012317

CC-0 供電設備、電力設備、電力設備、電力設備、電力設備

100% 200% 300% 400% 500% 600% 700% 800% 900% 1000% 1100% 1200% 1300% 1400% 1500% 1600% 1700% 1800% 1900% 2000% 2100% 2200% 2300% 2400% 2500% 2600% 2700% 2800% 2900% 3000% 3100% 3200% 3300% 3400% 3500% 3600% 3700% 3800% 3900% 4000% 4100% 4200% 4300% 4400% 4500% 4600% 4700% 4800% 4900% 5000% 5100% 5200% 5300% 5400% 5500% 5600% 5700% 5800% 5900% 6000% 6100% 6200% 6300% 6400% 6500% 6600% 6700% 6800% 6900% 7000% 7100% 7200% 7300% 7400% 7500% 7600% 7700% 7800% 7900% 8000% 8100% 8200% 8300% 8400% 8500% 8600% 8700% 8800% 8900% 9000% 9100% 9200% 9300% 9400% 9500% 9600% 9700% 9800% 9900% 10000% 10100% 10200% 10300% 10400% 10500% 10600% 10700% 10800% 10900% 11000% 11100% 11200% 11300% 11400% 11500% 11600% 11700% 11800% 11900% 12000% 12100% 12200% 12300% 12400% 12500% 12600% 12700% 12800% 12900% 13000% 13100% 13200% 13300% 13400% 13500% 13600% 13700% 13800% 13900% 14000% 14100% 14200% 14300% 14400% 14500% 14600% 14700% 14800% 14900% 15000% 15100% 15200% 15300% 15400% 15500% 15600% 15700% 15800% 15900% 16000% 16100% 16200% 16300% 16400% 16500% 16600% 16700% 16800% 16900% 17000% 17100% 17200% 17300% 17400% 17500% 17600% 17700% 17800% 17900% 18000% 18100% 18200% 18300% 18400% 18500% 18600% 18700% 18800% 18900% 19000% 19100% 19200% 19300% 19400% 19500% 19600% 19700% 19800% 19900% 20000% 20100% 20200% 20300% 20400% 20500% 20600% 20700% 20800% 20900% 21000% 21100% 21200% 21300% 21400% 21500% 21600% 21700% 21800% 21900% 22000% 22100% 22200% 22300% 22400% 22500% 22600% 22700% 22800% 22900% 23000% 23100% 23200% 23300% 23400% 23500% 23600% 23700% 23800% 23900% 24000% 24100% 24200% 24300% 24400% 24500% 24600% 24700% 24800% 24900% 25000% 25100% 25200% 25300% 25400% 25500% 25600% 25700% 25800% 25900% 26000% 26100% 26200% 26300% 26400% 26500% 26600% 26700% 26800% 26900% 27000% 27100% 27200% 27300% 27400% 27500% 27600% 27700% 27800% 27900% 28000% 28100% 28200% 28300% 28400% 28500% 28600% 28700% 28800% 28900% 29000% 29100% 29200% 29300% 29400% 29500% 29600% 29700% 29800% 29900% 30000% 30100% 30200% 30300% 30400% 30500% 30600% 30700% 30800% 30900% 31000% 31100% 31200% 31300% 31400% 31500% 31600% 31700% 31800% 31900% 32000% 32100% 32200% 32300% 32400% 32500% 32600% 32700% 32800% 32900% 33000% 33100% 33200% 33300% 33400% 33500% 33600% 33700% 33800% 33900% 34000% 34100% 34200% 34300% 34400% 34500% 34600% 34700% 34800% 34900% 35000% 35100% 35200% 35300% 35400% 35500% 35600% 35700% 35800% 35900% 36000% 36100% 36200% 36300% 36400% 36500% 36600% 36700% 36800% 36900% 37000% 37100% 37200% 37300% 37400% 37500% 37600% 37700% 37800% 37900% 38000% 38100% 38200% 38300% 38400% 38500% 38600% 38700% 38800% 38900% 39000% 39100% 39200% 39300% 39400% 39500% 39600% 39700% 39800% 39900% 40000% 40100% 40200% 40300% 40400% 40500% 40600% 40700% 40800% 40900% 41000% 41100% 41200% 41300% 41400% 41500% 41600% 41700% 41800% 41900% 42000% 42100% 42200% 42300% 42400% 42500% 42600% 42700% 42800% 42900% 43000% 43100% 43200% 43300% 43400% 43500% 43600% 43700% 43800% 43900% 44000% 44100% 44200% 44300% 44400% 44500% 44600% 44700% 44800% 44900% 45000% 45100% 45200% 45300% 45400% 45500% 45600% 45700% 45800% 45900% 46000% 46100% 46200% 46300% 46400% 46500% 46600% 46700% 46800% 46900% 47000% 47100% 47200% 47300% 47400% 47500% 47600% 47700% 47800% 47900% 48000% 48100% 48200% 48300% 48400% 48500% 48600% 48700% 48800% 48900% 49000% 49100% 49200% 49300% 49400% 49500% 49600% 49700% 49800% 49900% 50000% 50100% 50200% 50300% 50400% 50500% 50600% 50700% 50800% 50900% 51000% 51100% 51200% 51300% 51400% 51500% 51600% 51700% 51800% 51900% 52000% 52100% 52200% 52300% 52400% 52500% 52600% 52700% 52800% 52900% 53000% 53100% 53200% 53300% 53400% 53500% 53600% 53700% 53800% 53900% 54000% 54100% 54200% 54300% 54400% 54500% 54600% 54700% 54800% 54900% 55000% 55100% 55200% 55300% 55400% 55500% 55600% 55700% 55800% 55900% 56000% 56100% 56200% 56300% 56400% 56500% 56600% 56700% 56800% 56900% 57000% 57100% 57200% 57300% 57400% 57500% 57600% 57700% 57800% 57900% 58000% 58100% 58200% 58300% 58400% 58500% 58600% 58700% 58800% 58900% 59000% 59100% 59200% 59300% 59400% 59500% 59600% 59700% 59800% 59900% 60000% 60

1993-1994

THE APPELLANT'S MOTION FOR REHEARAL

TO: [REDACTED] FROM: [REDACTED]

776942-21 12/21/21

CONFIDENTIAL

PLATE 5. (b) *Brachycephalus* sp.

THE UNIVERSITY OF CHICAGO

2017-12-01 PM 1:00

THE UNIVERSITY OF CHICAGO PRESS

#5

RECEIVED ON: HIGH LINE PARK

#6

1. The above is a copy of the original document as received by the High Line Park. It is a copy of a document which was received by the High Line Park on 10/10/66. The document is a copy of a document which was received by the High Line Park on 10/10/66. The document is a copy of a document which was received by the High Line Park on 10/10/66.

40580

1. The above is a copy of the original document as received by the High Line Park. It is a copy of a document which was received by the High Line Park on 10/10/66. The document is a copy of a document which was received by the High Line Park on 10/10/66. The document is a copy of a document which was received by the High Line Park on 10/10/66.

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#10

11/11/2014
Date: 11/11/2014
Customer: 11/11/2014

Name: 11/11/2014
Product: 11/11/2014

11/11/2014

11/11/2014

11/11/2014

11/11/2014

I hereby certify that the above is
delivered from 11/11/2014 to 11/11/2014
specification requirements for
11/11/2014 11/11/2014 11/11/2014
quantity 11/11/2014
Signature: 11/11/2014

11/11/2014

11/11/2014

11/11/2014

11/11/2014

11/11/2014

11/11/2014

11/11/2014

11/11/2014

11/11/2014

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11/11/2014

11/11/2014

11/11/2014

11/11/2014

11/11/2014

11/11/2014

11/11/2014

43080

#14

RECYCLED 100% - HIGHLAND PARK

PLANT 3610
DATE 4/2/81
CARTON # 0390
NAME: ENVIRONMENTAL SERVICES, INC.
ADDRESS: 23600
CITY: HIGHTSTOWN, NJ 08520
STATE: NJ
COUNTRY: USA


I hereby certify that the above
delivered from 100% of the
specification requirements, for
stated quantity and class in
quantity stated.
Signature

Picked up by
Job # 3610-0503 - 100% GUAR.
Phone #
Name: 100% GUAR. 100% GUAR.
Product: 100%

Good check
Purchased from
Purchased from

NAME
ITEM
PRICE


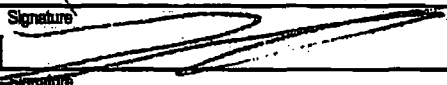
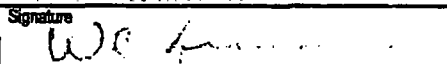
Quantity from tickets
Cumulative from tickets
300.00

Driver Name


Washed by: KENNEDY, B.

47800

WATER DISPOSAL MANIFESTS

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number MIK112091844	2. Page 1 of 1	3. Emergency Response Phone 216-902-8255	4. Manifest Tracking Number 010683919 JJK	
5. Generator's Name and Mailing Address US COAST GUARD 1240 EAST NINTH STREET RM 2179 CLEVELAND OH 48207		Generator's Site Address (if different than mailing address) 265472 US COAST GUARD 2660 EAST ATWATER ST DETROIT MI 48207				
Generator's Phone: 216-902-8255		U.S. EPA ID Number MIRO00017079				
6. Transporter 1 Company Name HM Environmental Services, Inc.		U.S. EPA ID Number				
7. Transporter 2 Company Name		U.S. EPA ID Number				
8. Designated Facility Name and Site Address USHER OIL 9000 ROSELAWN DETROIT MI 48204		U.S. EPA ID Number MIRO016985814				
Facility's Phone: 313-834-7056						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit WT/Vol	13. Waste Codes
		No.	Type			
	1. NON REGULATED LIQUIDS	001	TT	6.000	G	0291
	2.					
	3.					
	4.					
14. Special Handling Instructions and Additional Information 1) APPROVAL # 041713-W						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Officer's Printed/Typed Name Jim Goerdt on behalf of USCG		Signature 			Month Day Year 14 19 13	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____						
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name Larry Euse		Signature 			Month Day Year 14 19 13	
Transporter 2 Printed/Typed Name		Signature			Month Day Year	
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number: _____						
18b. Alternate Facility (or Generator)		U.S. EPA ID Number				
Facility's Phone: _____						
18c. Signature of Alternate Facility (or Generator)		Month Day Year				
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1.	2.	3.	4.			
20. Designated Facility Owner or Operator. Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a						
Printed/Typed Name W.C. ...		Signature 			Month Day Year 04 17 13	

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number MIK112071544		2. Page 1 of 1	3. Emergency Response Phone 216-902-6255		4. Manifest Tracking Number 010683921 JJK		
		5. Generator's Name and Mailing Address US COAST GUARD 1240 EAST NINTH STREET RM 2179 CLEVELAND OH 48207		Generator's Site Address (if different than mailing address) US COAST GUARD 2660 EAST ATWATER ST DETROIT MI 48207		265480			
6. Generator's Phone: 216 902-6255		6. Transporter 1 Company Name HM Environmental Services, Inc				U.S. EPA ID Number MIRO00017079			
7. Transporter 2 Company Name						U.S. EPA ID Number			
8. Designated Facility Name and Site Address USHER OIL 9000 ROSFLAWN DETROIT MI 48204						U.S. EPA ID Number MIRO018985814			
Facility's Phone: 313 834-7056									
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))			10. Containers No. Type		11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes
		1. NON-REGULATED LIQUIDS			001 TT		6000	G	029
		2.							
		3.							
		4.							
14. Special Handling Instructions and Additional Information 1) APPROVAL # 041713-W									
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.									
Generator's/Officer's Printed/Typed Name: Jim Goerdit on behalf of USCG Signature: _____ Month: 19 Day: 15 Year: 13									
TRANSPORTER INTL	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____								
	17. Transporter Acknowledgment of Receipt of Materials								
	Transporter 1 Printed/Typed Name: Jack Romancheck Signature: _____ Month: 19 Day: 15 Year: 13 Transporter 2 Printed/Typed Name: _____ Signature: _____ Month: _____ Day: _____ Year: _____								
DESIGNATED FACILITY	18. Discrepancy								
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
	Manifest Reference Number: _____								
	18b. Alternate Facility (or Generator) U.S. EPA ID Number: _____								
	Facility's Phone: _____								
18c. Signature of Alternate Facility (or Generator) _____ Month: _____ Day: _____ Year: _____									
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)									
1. _____ 2. _____ 3. _____ 4. _____									
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a									
Printed/Typed Name: J. West Signature: _____ Month: 04 Day: 19 Year: 13									

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number		
		MIK112091844	1	216-902-6255	010683920 JJK		
5. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)					
US COAST GUARD 1240 EAST NINTH STREET RM 2179 CLEVELAND OH 48207		AIR JAMES COOK US COAST GUARD 2660 EAST ATWATER ST DETROIT MI 48207					
Generator's Phone: 216 902 6255							
6. Transporter 1 Company Name		U.S. EPA ID Number					
HM Environmental Services, Inc.		MIR000017079					
7. Transporter 2 Company Name		U.S. EPA ID Number					
8. Designated Facility Name and Site Address		U.S. EPA ID Number					
USHER OIL 9000 ROSELAWN DETROIT MI 48204							
Facility's Phone: 313 834 7055		MID016985814					
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes	
		No.	Type				
	1. NON-REGULATED LIQUIDS	001	TT	9000	G	028L	
	2.						
	3.						
	4.						
14. Special Handling Instructions and Additional Information							
1) APPROVAL # 04713-W							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Officer's Printed/Typed Name							
Signature							
Month Day Year							
14/19/13							
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name							
Signature							
Month Day Year							
4/19/13							
Transporter 2 Printed/Typed Name							
Signature							
Month Day Year							
18. Discrepancy							
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
Manifest Reference Number:							
18b. Alternate Facility (or Generator) U.S. EPA ID Number							
Facility's Phone:							
18c. Signature of Alternate Facility (or Generator) Month Day Year							
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. 2. 3. 4.							
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a							
Printed/Typed Name							
Signature							
Month Day Year							
04/19/13							

C

[REDACTED]

[REDACTED]

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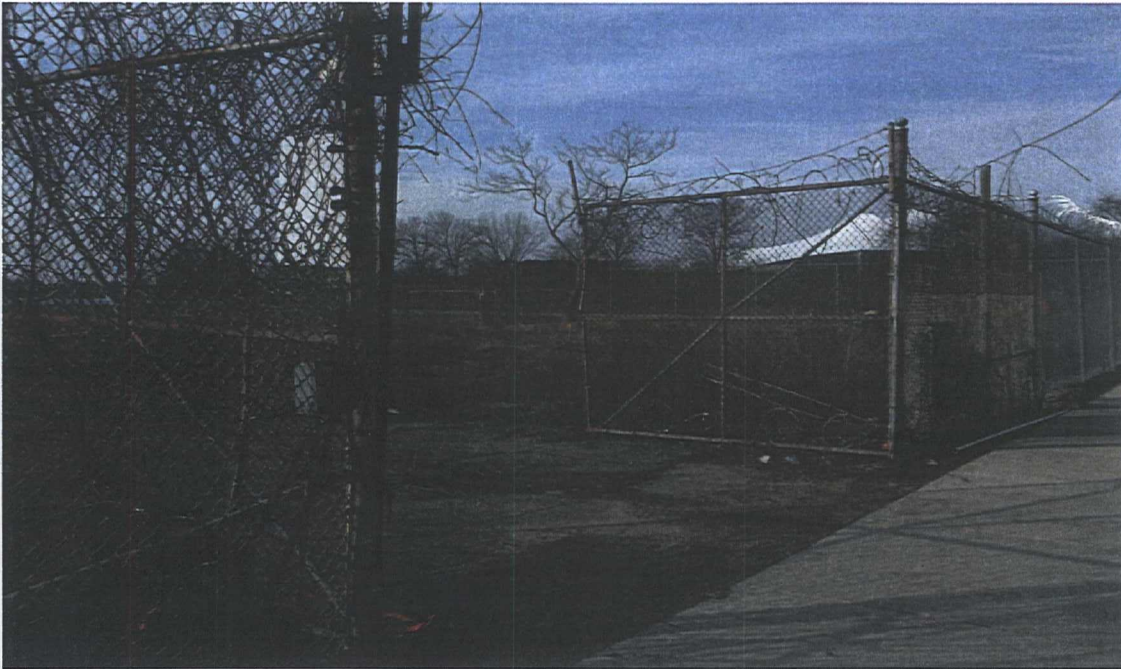
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Appendix C

**Removal and Restoration Activities
Photographic Documentation**

USCG - ATWATER REMOVAL ACTION



SITE:
USCG - Atwater
Removal Action

PHOTOGRAPHER:
J. Goerd
VIEW: Southwest

DESCRIPTION: Entrance to the site prior to initiating any removal actions.

#1
04/08/13



SITE:
USCG - Atwater
Removal Action

PHOTOGRAPHER:
J. Goerd
VIEW: Northwest

DESCRIPTION: Straw bales placed along perimeter of site for erosion/sediment control.

#2
04/08/13

USCG – ATWATER REMOVAL ACTION

**SITE:**

USCG - Atwater
Removal Action

PHOTOGRAPHER:

J. Goerd

VIEW: Southeast

DESCRIPTION: Concrete and misc. other debris to be removed from the site prior to initiating excavation activities.

#3

04/08/13

**SITE:**

USCG - Atwater
Removal Action

PHOTOGRAPHER:

J. Goerd

VIEW: Northwest

DESCRIPTION: All excavation corners were professionally surveyed prior to initiating removal activities.

#4

04/08/13

USCG - ATWATER REMOVAL ACTION

DETROIT, MI



SITE:
USCG - Atwater
Removal Action

PHOTOGRAPHER:
J. Goerd
VIEW: North

DESCRIPTION: Well abandonment activities prior to
excavating.

#5
04/08/13



SITE:
USCG - Atwater
Removal Action

PHOTOGRAPHER:
J. Goerd
VIEW: West

DESCRIPTION: Heavy equipment mobilizing to the site.

#6
04/08/13

USCG – ATWATER REMOVAL ACTION

DETROIT, MI

**SITE:**

USCG - Atwater
Removal Action

PHOTOGRAPHER:

J. Goerd

VIEW: Southeast

DESCRIPTION: Loading of broken concrete into disposal truck.

#7

04/09/13

**SITE:**

USCG - Atwater
Removal Action

PHOTOGRAPHER:

J. Goerd

VIEW: East

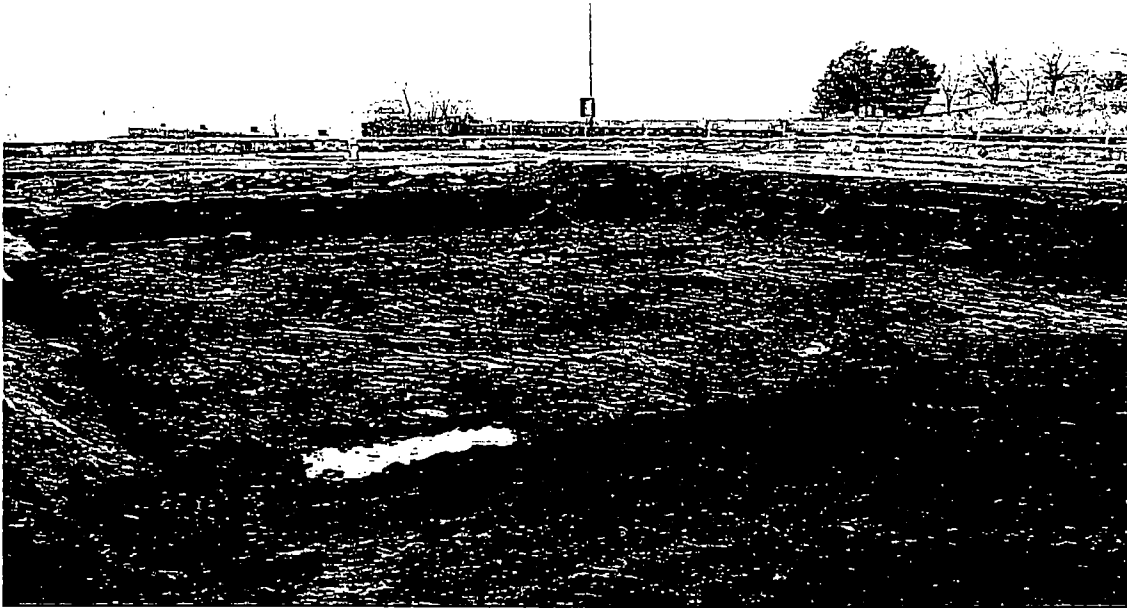
DESCRIPTION: Large concrete footer discovered within the southern portion of the Area 7 excavation.

#8

04/09/13

USCG - ATWATER REMOVAL ACTION

DETROIT, MI

**SITE:**

USCG - Atwater
Removal Action

PHOTOGRAPHER:

J. Goerd

VIEW: Southeast

DESCRIPTION: Area 7 excavation.

#9

04/09/13

**SITE:**

USCG - Atwater
Removal Action

PHOTOGRAPHER:

J. Goerd

VIEW: ---

DESCRIPTION: Large wooden pilings were found in majority
of excavations at the site.

#10

04/09/13



Tetra Tech, Inc.

USCG – ATWATER REMOVAL ACTION

DETROIT, MI



SITE: USCG - Atwater Removal Action	PHOTOGRAPHER: J. Goerd VIEW: Northwest	DESCRIPTION: Concrete curbing was limit of excavations along eastern side of the site.	#11 04/10/13
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SITE: USCG - Atwater Removal Action	PHOTOGRAPHER: J. Goerd VIEW: Southeast	DESCRIPTION: Excavation Area 6 (foreground), Area 3 (central), and Area 7 (background).	#12 04/11/13
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USCG – ATWATER REMOVAL ACTION

DETROIT, MI

**SITE:**

USCG - Atwater
Removal Action

PHOTOGRAPHER:

J. Goerd
VIEW: South

DESCRIPTION: Water accumulation in Area 1 (foreground)
and Area 4 (background) from both heavy rains and groundwater
recharge.

#13
04/12/13

**SITE:**

USCG - Atwater
Removal Action

PHOTOGRAPHER:

J. Goerd
VIEW: Southeast

DESCRIPTION: Additional areas marked for excavation along
Area 3 based on analytical results.

#14
04/16/13

USCG – ATWATER REMOVAL ACTION
DETROIT, MI



SITE: USCG - Atwater Removal Action	PHOTOGRAPHER: J. Goerd VIEW: Northwest	DESCRIPTION: Excavation Area 7 (foreground), Area 3 (central) and Area 6 (background).	#15 04/16/13
--	--	--	-----------------



SITE: USCG - Atwater Removal Action	PHOTOGRAPHER: J. Goerd VIEW: Southeast	DESCRIPTION: Clean fill (Class 2 sand) being distributed across the site.	#16 04/18/13
--	--	---	-----------------

USCG – ATWATER REMOVAL ACTION

DETROIT, MI



SITE:
USCG - Atwater
Removal Action

PHOTOGRAPHER:
J. Goerd
VIEW: Southeast

DESCRIPTION: Clean fill (Class 2 sand) spread evenly across the site.

#17
04/18/13



SITE:
USCG - Atwater
Removal Action

PHOTOGRAPHER:
J. Goerd
VIEW: Northwest

DESCRIPTION: Water being pumped from Area 4.

#18
04/19/13

USCG – ATWATER REMOVAL ACTION

DETROIT, MI



SITE: USCG - Atwater Removal Action	PHOTOGRAPHER: J. Goerd VIEW: Northeast	DESCRIPTION: Fill compaction within Area 5.	#19 04/19/13
--	--	--	-----------------



SITE: USCG - Atwater Removal Action	PHOTOGRAPHER: J. Goerd VIEW: Northwest	DESCRIPTION: Final grade of clean fill (Class 2 sand).	#20 04/22/13
--	--	---	-----------------



Tetra Tech, Inc.

USCG – ATWATER REMOVAL ACTION

DETROIT, MI

**SITE:**

USCG - Atwater
Removal Action

PHOTOGRAPHER:

J. Goerdts

VIEW: Southeast

DESCRIPTION: Distribution of top soil.

#21

04/23/13

**SITE:**

USCG - Atwater
Removal Action

PHOTOGRAPHER:

J. Goerdts

VIEW: Northwest

DESCRIPTION: Top soil application complete. Site seeded and
lightly raked.

#22

04/23/13



Tetra Tech, Inc.

D

5



Appendix D

Laboratory Analytical Reports

WASTE CHARACTERIZATION ANALYSES

March 26, 2013

Mr. Bob Borst
HM Environmental Services, Inc.
42826 N. Walnut
Mt. Clemens, MI 48043

Phone: (586) 469-0041

Fax: (586) 469-1014

RE: Trace Project T13C270
Client Project USCG Atwater

Dear Mr. Borst:

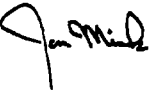
Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at jmink@trace-labs.com.

Sincerely,



Jon Mink
Senior Project Manager
Enclosures



NJDEP Accreditation No. MI008 PADEP Accreditation No. 68-04471

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phone 231.773.5998
toll-free 800.733.5998
fax 231.773.6537

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673
info@trace-labs.com
www.trace-labs.com

SAMPLE SUMMARY

Trace Project ID: T13C270
Client Project ID: USCG Atwater

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
T13C270-01	Soil Composite North End of Property	Solid	sm	03/20/13 09:00	03/20/13 15:30
T13C270-02	Soil Grab South End of Property	Solid	sm	03/20/13 09:00	03/20/13 15:30

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

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ANALYTICAL RESULTS

Trace Project ID: T13C270
Client Project ID: USCG Atwater

Trace ID: T13C270-01 Date Collected: 03/20/13 09:00 Matrix: Solid
Sample ID: Soil Composite North End of Property Date Received: 03/20/13 15:30

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
------------	---------------	-----	----------	----------	----	----------	----	-------	-----

METALS, TCLP

Analysis Method: EPA 6010B

Batch: T035889

Arsenic	<0.30 mg/L	0.30	1	03/22/13	jan	03/22/13	mes		5.0
Barium	1.2 mg/L	1.0	1	03/22/13	jan	03/22/13	mes		100
Cadmium	<0.10 mg/L	0.10	1	03/22/13	jan	03/22/13	mes		1.0
Chromium	<0.50 mg/L	0.50	1	03/22/13	jan	03/22/13	mes		5.0
Lead	<0.50 mg/L	0.50	1	03/22/13	jan	03/22/13	mes		5.0
Selenium	<0.60 mg/L	0.60	1	03/22/13	jan	03/22/13	mes		1.0
Silver	<0.10 mg/L	0.10	1	03/22/13	jan	03/22/13	mes		5.0

Analysis Method: EPA 7470A

Batch: T035882

Mercury	<0.010 mg/L	0.010	1	03/22/13	jan	03/22/13	mes		0.20
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ANALYTICAL RESULTS

Trace Project ID: T13C270
Client Project ID: USCG Atwater

Trace ID: T13C270-02 Date Collected: 03/20/13 09:00 Matrix: Solid
Sample ID: Soil Grab South End of Property Date Received: 03/20/13 15:30

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
------------	---------	-------	-----	----------	----------	----	----------	----	-------	-----

METALS, TCLP

Analysis Method: EPA 6010B

Batch: T035889

Arsenic	<0.30 mg/L	0.30	1	03/22/13	jan	03/22/13	mes		5.0
Barium	1.5 mg/L	1.0	1	03/22/13	jan	03/22/13	mes		100
Cadmium	<0.10 mg/L	0.10	1	03/22/13	jan	03/22/13	mes		1.0
Chromium	<0.50 mg/L	0.50	1	03/22/13	jan	03/22/13	mes		5.0
Lead	0.60 mg/L	0.50	1	03/22/13	jan	03/22/13	mes		5.0
Selenium	<0.60 mg/L	0.60	1	03/22/13	jan	03/22/13	mes		1.0
Silver	<0.10 mg/L	0.10	1	03/22/13	jan	03/22/13	mes		5.0

Analysis Method: EPA 7470A

Batch: T035882

Mercury	<0.010 mg/L	0.010	1	03/22/13	jan	03/22/13	mes		0.20
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QUALITY CONTROL RESULTS

Trace Project ID: T13C270

Client Project ID: USCG Atwater

QC Batch: T035889

Analysis Description: Lead, TCLP

QC Batch Method: EPA 3015 Microwave Assisted Digestions
for Liquids

Analysis Method: EPA 6010B

METHOD BLANK: T035889-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/L	<0.10	0.10	
Arsenic	mg/L	<0.30	0.30	
Barium	mg/L	<1.0	1.0	
Cadmium	mg/L	<0.10	0.10	
Chromium	mg/L	<0.50	0.50	
Lead	mg/L	<0.50	0.50	
Selenium	mg/L	<0.60	0.60	

METHOD BLANK: T035889-BLK2

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/L	<0.10	0.10	
Arsenic	mg/L	<0.30	0.30	
Barium	mg/L	<1.0	1.0	
Cadmium	mg/L	<0.10	0.10	
Chromium	mg/L	<0.50	0.50	
Lead	mg/L	<0.50	0.50	
Selenium	mg/L	<0.60	0.60	

LABORATORY CONTROL SAMPLE: T035889-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Silver	mg/L	0.0278	<0.10	95	80-120	
Arsenic	mg/L	0.0556	<0.30	100	80-120	
Barium	mg/L	0.889	<1.0	106	80-120	
Cadmium	mg/L	0.0278	<0.10	104	80-120	
Chromium	mg/L	0.0278	<0.50	111	80-120	
Lead	mg/L	0.0556	<0.50	100	80-120	
Selenium	mg/L	0.0556	<0.60	88	80-120	

Trace Project ID: T13C270

Client Project ID: USCG Atwater

QC Batch: T035882

Analysis Description: Mercury, TCLP

QC Batch Method: EPA 7470A Prep

Analysis Method: EPA 7470A

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METHOD BLANK: T035882-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/L	<0.010	0.010	

METHOD BLANK: T035882-BLK2

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/L	<0.010	0.010	

LABORATORY CONTROL SAMPLE: T035882-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	mg/L	0.00200	<0.010	106	80-120	

Trace Project ID: T13C270
Client Project ID: USCG Atwater

QC Batch: T035872

QC Batch Method: Leaching procedures

Analysis Description: TCLP Extraction, Metals

Analysis Method: EPA 1311

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CHAIN-OF-CUSTODY RECORD

TRACE
the science of compliance

phone 231.773.5998
toll-free 800.733.5998
fax 231.773.6537

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673
www.trace-labs.com

Page 1 of 1

TRACE ID NO.

TBC270

Report Results To:	Client Name: HM ENVIRONMENTAL SERVICES, INC.		Logged By: SD		Checked By: PMU	
	Contact Person: BOB BORST		Received on ice: Yes <input type="radio"/> No <input checked="" type="radio"/>		Preservative Checked: Yes <input type="radio"/> No <input checked="" type="radio"/> N/A	
	Mailing Address: 42820 N. WALNUT		Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:			
	City, State, Zip Code: MT. CLEMENS, MI					
Bill To:	Phone: 586-469-0041		Fax: 586-469-1014		Regulatory Requirements	
	Email Address: bborst@hmenv.com		Cell #: 248-978-3839		Turnaround Requirements	
	Project Name & #: USCG ATWATER		Sampled by: S. MARTIN		Matrix Key	
	Billing Address (if different) SAME		City, State, Zip Code		ANALYSIS REQUESTED	
Request for Analytical Services	Attn: _____ Phone: _____ PO #: _____				Possible Health Hazard	
	TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	MATRIX	NUMBER OF CONTAINERS
	01	3/20	9:00am	COMPOSITE SOIL COMPOSITE	S	1 X
		3/20		NORTH END OF PROPERTY		
				SOIL GRAB SOUTH END OF	S	1 X
	02	3/20	9:10am	PROPERTY		
Please Sign	Item #	RELEASED BY	RECEIVED BY	DATE	TIME	Item #
	1)	R. BORST	UPS	3/20/13	3:30	3)
	2)	UPS				4)

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at <http://www.trace-labs.com/cocterm.php>

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SAMPLE LOG IN CHECKLIST

Date: <u>3/21/13</u>	Client Name: <u>HM Environmental</u>	# of Coolers: <u>1</u>
Trace ID #: <u>T13C270</u>	Project Name: _____	Cooler #s: _____
Logged in by: <u>220</u>		Cooler #s: _____

Cooler Receipt

Cooler/samples delivered by:	Trace courier <input type="checkbox"/>	Name of delivery person: _____
	Hand delivered <input type="checkbox"/>	
	Commercial courier <input checked="" type="checkbox"/>	UPS <input checked="" type="checkbox"/> DHL <input type="checkbox"/> FED EX <input type="checkbox"/> US Mail <input type="checkbox"/>
Did cooler come with a bill of lading?	No <input type="checkbox"/> Yes <input type="checkbox"/>	<input checked="" type="checkbox"/> Not Applicable Way Bill or Tracking #: _____
COC Seals present and intact on cooler?	No <input type="checkbox"/> Yes <input type="checkbox"/>	<input checked="" type="checkbox"/> Not Applicable
Custody seals signed by Client?	No <input type="checkbox"/> Yes <input type="checkbox"/>	Client custody seal # (if applicable): _____

Coolant and Temperature

Type of Coolant Used		Cooler Temperature	Correction Factor <u>0.1</u> °C
	Yes <input type="checkbox"/> No <input type="checkbox"/>	Date: <u>3/21/13</u> Time: <u>10:05</u>	
Slurry w/ crushed, cubed, or chip ice?	<input type="checkbox"/> <input type="checkbox"/>	Temperature Blank: _____ °C (Use Digital Stick Thermometer)	
Multiple bags of ice around samples?	<input type="checkbox"/> <input type="checkbox"/>	Range of 3 samples: <u>9.5</u> °C (Use IR Thermometer)	
Ice Packs/ Blue Ice:	<input type="checkbox"/> <input type="checkbox"/>	Melt Water: _____ °C (IR or Stick Therm. - circle one)	
No Coolant Present:	<input checked="" type="checkbox"/>	Ice still present upon receipt: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

General

	Yes	No	NA
COC taped to inside of cooler lid?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
All bottles arrived unbroken with labels in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Each sample point is in a sealed plastic bag?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Labels filled out completely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All bottle labels agree with Chain of Custody (COC)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient sample to run tests requested?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH checked and samples at correct pH?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Correct preservative added to samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DRO/GRO samples received and appropriate check in form completed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Air bubbles absent from VOAs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
COC filled out properly and signed by client?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC signed in by TRACE sample custodian?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was project manager called and samples discussed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Contact: _____

Date: _____

Notes:

*EMD pH Test Strips Used:

<input type="checkbox"/> pH 0-2.5 Lot: HC932215	<input type="checkbox"/> pH 11.0-13.0 Lot: HC949254
<input type="checkbox"/> Other: _____	

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CONFIRMATION SAMPLE AND BACKFILL ANALYSES



April 16, 2013

TETRA TECH NUS - Pittsburgh
Attn: Mr. Joe Logan
661 Anderson Drive, Foster Plaza 7
Pittsburgh, PA 15220

Project: USCG Atwater Facility

Dear Mr. Joe Logan,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

Work Order	Received	Description
1304171	04/10/2013	112G02435

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

ACLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/12-056-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003059); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#83658); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/48855); North Carolina DNRE (#659); Texas CEQ (#T104704495-13-3); Virginia DCLS (#460153/1622); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-12-00236).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications section of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary L. Wood". The signature is fluid and cursive, with the first and last names being more prominent.

Gary L. Wood
Project Chemist



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB238-0305**
Lab Sample ID: **1304171-01**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303247**
Percent Solids: **83**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 13:50**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**
Prepared: **04/11/13** By: **ALK**
Analyzed: **04/11/13** By: **ASC**
Analytical Batch: **3D12016**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.011J	0.020	0.0055
208-96-8	Acenaphthylene	0.0070J	0.020	0.0050
120-12-7	Anthracene	0.015J	0.020	0.0048
56-55-3	Benzo(a)anthracene	0.11	0.020	0.0033
50-32-8	Benzo(a)pyrene	0.13	0.020	0.0028
*205-99-2	Benzo(b)fluoranthene	0.12	0.020	0.0023
*207-08-9	Benzo(k)fluoranthene	0.083	0.020	0.0023
191-24-2	Benzo(g,h,i)perylene	0.088	0.020	0.0023
218-01-9	Chrysene	0.10	0.020	0.0047
53-70-3	Dibenz(a,h)anthracene	0.020	0.020	0.0023
206-44-0	Fluoranthene	0.13	0.020	0.0054
86-73-7	Fluorene	0.0065J	0.020	0.0048
193-39-5	Indeno(1,2,3-cd)pyrene	0.076	0.020	0.0032
91-57-6	2-Methylnaphthalene	0.020U	0.020	0.0055
91-20-3	Naphthalene	0.020U	0.020	0.0067
*85-01-8	Phenanthrene	0.066	0.020	0.0049
*129-00-0	Pyrene	0.19	0.020	0.0052

Surrogates:

Nitrobenzene-d5

79

35-100

2-Fluorobiphenyl

80

45-105

o-Terphenyl

79

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB238-0305**
Lab Sample ID: **1304171-01**
Matrix: **Soil**
Percent Solids: **83**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 13:50**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	4.5	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 10:25	DSC	1303272
*Lead	56	1.0	0.066	mg/kg dry wt.	10	USEPA-6020A	04/12/13 11:54	DSC	1303272

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB238-0305**
Lab Sample ID: **1304171-01**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 13:50**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	83	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB239-0305**
 Lab Sample ID: **1304171-02**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **1**
 QC Batch: **1303247**
 Percent Solids: **82**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/09/13 13:53**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13 By: ALK**
 Analyzed: **04/11/13 By: ASC**
 Analytical Batch: **3D12016**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.070	0.020	0.0056
208-96-8	Acenaphthylene	0.020U	0.020	0.0051
120-12-7	Anthracene	0.020U	0.020	0.0049
56-55-3	Benzo(a)anthracene	0.0062J	0.020	0.0033
50-32-8	Benzo(a)pyrene	0.0066J	0.020	0.0028
*205-99-2	Benzo(b)fluoranthene	0.0046J	0.020	0.0023
*207-08-9	Benzo(k)fluoranthene	0.0046J	0.020	0.0024
191-24-2	Benzo(g,h,i)perylene	0.0029J	0.020	0.0023
218-01-9	Chrysene	0.0066J	0.020	0.0047
53-70-3	Dibenz(a,h)anthracene	0.020U	0.020	0.0023
206-44-0	Fluoranthene	0.010J	0.020	0.0054
86-73-7	Fluorene	0.020U	0.020	0.0049
193-39-5	Indeno(1,2,3-cd)pyrene	0.0033J	0.020	0.0032
91-57-6	2-Methylnaphthalene	0.020U	0.020	0.0055
91-20-3	Naphthalene	0.020U	0.020	0.0068
85-01-8	Phenanthrene	0.0091J	0.020	0.0049
129-00-0	Pyrene	0.012J	0.020	0.0052

Surrogates:
Nitrobenzene-d5
79
35-100
2-Fluorobiphenyl
82
45-105
o-Terphenyl
85
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB239-0305**
Lab Sample ID: **1304171-02**
Matrix: **Soil**
Percent Solids: **82**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 13:53**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.5	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 10:39	DSC	1303272
Lead	13	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/12/13 12:14	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB239-0305**
Lab Sample ID: **1304171-02**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 13:53**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	82	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB240-0305**
Lab Sample ID: **1304171-03**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **10**
QC Batch: **1303247**
Percent Solids: **82**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 13:58**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**
Prepared: **04/11/13** By: **ALK**
Analyzed: **04/12/13** By: **DWJ**
Analytical Batch: **3D12027**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.13J	0.20	0.057
208-96-8	Acenaphthylene	0.083J	0.20	0.051
120-12-7	Anthracene	0.53	0.20	0.049
56-55-3	Benzo(a)anthracene	1.6	0.20	0.034
50-32-8	Benzo(a)pyrene	1.4	0.20	0.028
*205-99-2	Benzo(b)fluoranthene	1.5	0.20	0.023
*207-08-9	Benzo(k)fluoranthene	0.76	0.20	0.024
191-24-2	Benzo(g,h,i)perylene	0.65	0.20	0.023
218-01-9	Chrysene	1.6	0.20	0.048
*53-70-3	Dibenz(a,h)anthracene	0.15J	0.20	0.023
206-44-0	Fluoranthene	2.9	0.20	0.055
86-73-7	Fluorene	0.15J	0.20	0.049
193-39-5	Indeno(1,2,3-cd)pyrene	0.61	0.20	0.033
91-57-6	2-Methylnaphthalene	0.20U	0.20	0.056
*91-20-3	Naphthalene	0.20U	0.20	0.069
85-01-8	Phenanthrene	1.6	0.20	0.050
129-00-0	Pyrene	2.9	0.20	0.053

Surrogates:

Nitrobenzene-d5

44

35-100

2-Fluorobiphenyl

66

45-105

o-Terphenyl

79

30-125

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB240-0305**
 Lab Sample ID: **1304171-03**
 Matrix: **Soil**
 Percent Solids: **82**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/09/13 13:58**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	7.2	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 10:42	DSC	1303272
Lead	120	2.5	0.16	mg/kg dry wt.	25	USEPA-6020A	04/12/13 12:17	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB240-0305**
Lab Sample ID: **1304171-03**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 13:58**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	82	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB241-0305**
Lab Sample ID: **1304171-04**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **10**
QC Batch: **1303247**
Percent Solids: **81**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 14:02**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**
Prepared: **04/11/13 By: ALK**
Analyzed: **04/12/13 By: DWJ**
Analytical Batch: **3D12027**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.23	0.21	0.057
208-96-8	Acenaphthylene	0.21U	0.21	0.051
120-12-7	Anthracene	0.57	0.21	0.049
56-55-3	Benzo(a)anthracene	1.3	0.21	0.034
50-32-8	Benzo(a)pyrene	1.1	0.21	0.028
*205-99-2	Benzo(b)fluoranthene	1.2	0.21	0.023
*207-08-9	Benzo(k)fluoranthene	0.64	0.21	0.024
191-24-2	Benzo(g,h,i)perylene	0.57	0.21	0.023
218-01-9	Chrysene	1.3	0.21	0.048
53-70-3	Dibenz(a,h)anthracene	0.11J	0.21	0.023
206-44-0	Fluoranthene	2.3	0.21	0.055
86-73-7	Fluorene	0.26	0.21	0.050
193-39-5	Indeno(1,2,3-cd)pyrene	0.55	0.21	0.033
*91-57-6	2-Methylnaphthalene	0.21U	0.21	0.056
91-20-3	Naphthalene	0.21U	0.21	0.069
85-01-8	Phenanthrene	2.1	0.21	0.050
129-00-0	Pyrene	3.0	0.21	0.053

Surrogates:

Nitrobenzene-d5

2-Fluorobiphenyl

o-Terphenyl

% Recovery

61

65

75

Control Limits

35-100

45-105

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB241-0305**
Lab Sample ID: **1304171-04**
Matrix: **Soil**
Percent Solids: **81**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 14:02**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	7.7	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 10:45	DSC	1303272
Lead	320	5.0	0.33	mg/kg dry wt.	50	USEPA-6020A	04/12/13 12:19	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB241-0305**
Lab Sample ID: **1304171-04**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 14:02**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	81	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB242-0305**
Lab Sample ID: **1304171-05**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303247**
Percent Solids: **85**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 14:12**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**
Prepared: **04/11/13 By: ALK**
Analyzed: **04/11/13 By: ASC**
Analytical Batch: **3D12016**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.018J	0.020	0.0055
208-96-8	Acenaphthylene	0.020U	0.020	0.0049
120-12-7	Anthracene	0.031	0.020	0.0047
56-55-3	Benzo(a)anthracene	0.033	0.020	0.0032
*50-32-8	Benzo(a)pyrene	0.013J	0.020	0.0027
*205-99-2	Benzo(b)fluoranthene	0.023	0.020	0.0023
*207-08-9	Benzo(k)fluoranthene	0.016J	0.020	0.0023
191-24-2	Benzo(g,h,i)perylene	0.011J	0.020	0.0022
218-01-9	Chrysene	0.033	0.020	0.0046
53-70-3	Dibenz(a,h)anthracene	0.0028J	0.020	0.0023
206-44-0	Fluoranthene	0.098	0.020	0.0053
86-73-7	Fluorene	0.027	0.020	0.0048
*193-39-5	Indeno(1,2,3-cd)pyrene	0.0073J	0.020	0.0032
91-57-6	2-Methylnaphthalene	0.51	0.020	0.0054
91-20-3	Naphthalene	0.75	0.020	0.0066
85-01-8	Phenanthrene	0.10	0.020	0.0048
129-00-0	Pyrene	0.10	0.020	0.0051

Surrogates:

	% Recovery	Control Limits
* Nitrobenzene-d5	93	35-100
2-Fluorobiphenyl	77	45-105
o-Terphenyl	73	30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB242-0305**
Lab Sample ID: **1304171-05**
Matrix: **Soil**
Percent Solids: **85**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 14:12**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	7.0	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 10:53	DSC	1303272
Lead	18	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/12/13 12:22	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB242-0305**
Lab Sample ID: **1304171-05**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 14:12**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	85	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB243-0305**
 Lab Sample ID: **1304171-06**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **20**
 QC Batch: **1303247**
 Percent Solids: **81**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/09/13 14:08**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13 By: ALK**
 Analyzed: **04/11/13 By: DWJ**
 Analytical Batch: **3D12027**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.85	0.41	0.11
208-96-8	Acenaphthylene	0.41U	0.41	0.10
120-12-7	Anthracene	2.4	0.41	0.099
56-55-3	Benzo(a)anthracene	4.5	0.41	0.068
50-32-8	Benzo(a)pyrene	4.2	0.41	0.057
*205-99-2	Benzo(b)fluoranthene	4.0	0.41	0.047
*207-08-9	Benzo(k)fluoranthene	2.2	0.41	0.048
191-24-2	Benzo(g,h,i)perylene	2.6	0.41	0.047
218-01-9	Chrysene	4.5	0.41	0.096
*53-70-3	Dibenz(a,h)anthracene	0.42	0.41	0.047
206-44-0	Fluoranthene	8.7	0.41	0.11
86-73-7	Fluorene	0.68	0.41	0.10
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	0.41	0.066
91-57-6	2-Methylnaphthalene	0.41U	0.41	0.11
91-20-3	Naphthalene	0.41U	0.41	0.14
85-01-8	Phenanthrene	6.9	0.41	0.10
129-00-0	Pyrene	11	0.41	0.11

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB243-0305**
Lab Sample ID: **1304171-06**
Matrix: **Soil**
Percent Solids: **81**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 14:08**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.2	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 10:56	DSC	1303272
Lead	38	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/12/13 12:25	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB243-0305**
Lab Sample ID: **1304171-06**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 14:08**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	81	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB-FD-01**
 Lab Sample ID: **1304171-07**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **1**
 QC Batch: **1303247**
 Percent Solids: **81**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/09/13 00:00**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13** By: **ALK**
 Analyzed: **04/12/13** By: **DWJ**
 Analytical Batch: **3D12027**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.065	0.021	0.0057
208-96-8	Acenaphthylene	0.023	0.021	0.0052
120-12-7	Anthracene	0.16	0.021	0.0050
56-55-3	Benzo(a)anthracene	0.56	0.021	0.0034
50-32-8	Benzo(a)pyrene	0.34	0.021	0.0028
*205-99-2	Benzo(b)fluoranthene	0.47	0.021	0.0024
*207-08-9	Benzo(k)fluoranthene	0.23	0.021	0.0024
191-24-2	Benzo(g,h,i)perylene	0.20	0.021	0.0023
218-01-9	Chrysene	0.39	0.021	0.0048
*53-70-3	Dibenz(a,h)anthracene	0.044	0.021	0.0024
206-44-0	Fluoranthene	0.74	0.021	0.0055
86-73-7	Fluorene	0.086	0.021	0.0050
193-39-5	Indeno(1,2,3-cd)pyrene	0.17	0.021	0.0033
91-57-6	2-Methylnaphthalene	0.020J	0.021	0.0056
91-20-3	Naphthalene	0.017J	0.021	0.0069
85-01-8	Phenanthrene	0.68	0.021	0.0050
129-00-0	Pyrene	0.85	0.021	0.0053

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

70

35-100

2-Fluorobiphenyl

69

45-105

o-Terphenyl

65

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB-FD-01**
Lab Sample ID: **1304171-07**
Matrix: **Soil**
Percent Solids: **81**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 00:00**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	8.0	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 10:59	DSC	1303272
Lead	270	5.0	0.33	mg/kg dry wt.	50	USEPA-6020A	04/12/13 12:28	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB-FD-01**
Lab Sample ID: **1304171-07**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/09/13 00:00**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	81	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: USCG Atwater Facility
Client Sample ID: **DASS213-0002**
Lab Sample ID: **1304171-08**
Matrix: Soil
Unit: mg/kg dry
Dilution Factor: 10
QC Batch: 1303247
Percent Solids: 87

Work Order: **1304171**
Description: 112G02435
Sampled: 04/10/13 10:50
Sampled By: Tetra Tech NUS
Received: 04/10/13 17:15
Prepared: 04/11/13 By: ALK
Analyzed: 04/11/13 By: ASC
Analytical Batch: 3D12016

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.14J	0.19	0.053
*208-96-8	Acenaphthylene	0.069J	0.19	0.048
120-12-7	Anthracene	0.44	0.19	0.046
56-55-3	Benzo(a)anthracene	1.1	0.19	0.032
50-32-8	Benzo(a)pyrene	1.2	0.19	0.027
*205-99-2	Benzo(b)fluoranthene	1.3	0.19	0.022
*207-08-9	Benzo(k)fluoranthene	0.90	0.19	0.023
191-24-2	Benzo(g,h,i)perylene	0.69	0.19	0.022
218-01-9	Chrysene	1.2	0.19	0.045
53-70-3	Dibenz(a,h)anthracene	0.25	0.19	0.022
206-44-0	Fluoranthene	2.5	0.19	0.052
*86-73-7	Fluorene	0.12J	0.19	0.047
193-39-5	Indeno(1,2,3-cd)pyrene	0.61	0.19	0.031
*91-57-6	2-Methylnaphthalene	0.19U	0.19	0.053
91-20-3	Naphthalene	0.085J	0.19	0.065
85-01-8	Phenanthrene	1.9	0.19	0.047
129-00-0	Pyrene	2.4	0.19	0.050

Surrogates:

Nitrobenzene-d5

61

35-100

2-Fluorobiphenyl

73

45-105

o-Terphenyl

113

30-125

% Recovery

Control Limits

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS213-0002**
Lab Sample ID: **1304171-08**
Matrix: **Soil**
Percent Solids: **87**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 10:50**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	8.3	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 11:02	DSC	1303272
Lead	720	10	0.66	mg/kg dry wt.	100	USEPA-6020A	04/12/13 12:37	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS213-0002**
Lab Sample ID: **1304171-08**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 10:50**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	87	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS214-0002**
 Lab Sample ID: **1304171-09**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **10**
 QC Batch: **1303247**
 Percent Solids: **79**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 10:55**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13 By: ALK**
 Analyzed: **04/11/13 By: ASC**
 Analytical Batch: **3D12016**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.21U	0.21	0.059
208-96-8	Acenaphthylene	0.21U	0.21	0.053
*120-12-7	Anthracene	0.091J	0.21	0.051
56-55-3	Benzo(a)anthracene	0.31	0.21	0.035
50-32-8	Benzo(a)pyrene	0.38	0.21	0.029
*205-99-2	Benzo(b)fluoranthene	0.58	0.21	0.024
*207-08-9	Benzo(k)fluoranthene	0.40	0.21	0.025
191-24-2	Benzo(g,h,i)perylene	0.32	0.21	0.024
*218-01-9	Chrysene	0.46	0.21	0.049
53-70-3	Dibenz(a,h)anthracene	0.10J	0.21	0.024
206-44-0	Fluoranthene	0.47	0.21	0.057
86-73-7	Fluorene	0.21U	0.21	0.051
193-39-5	Indeno(1,2,3-cd)pyrene	0.25	0.21	0.034
*91-57-6	2-Methylnaphthalene	0.21U	0.21	0.058
91-20-3	Naphthalene	0.21U	0.21	0.071
85-01-8	Phenanthrene	0.26	0.21	0.052
129-00-0	Pyrene	0.73	0.21	0.055

Surrogates:
% Recovery
Control Limits

* Nitrobenzene-d5

90

35-100

2-Fluorobiphenyl

71

45-105

o-Terphenyl

74

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS214-0002**
Lab Sample ID: **1304171-09**
Matrix: **Soil**
Percent Solids: **79**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 10:55**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	8.7	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 11:05	DSC	1303272
Lead	290	5.0	0.33	mg/kg dry wt.	50	USEPA-6020A	04/12/13 12:40	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS214-0002**
Lab Sample ID: **1304171-09**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 10:55**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	79	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS215-0002**
 Lab Sample ID: **1304171-10**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **10**
 QC Batch: **1303247**
 Percent Solids: **90**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:00**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13** By: **ALK**
 Analyzed: **04/11/13** By: **ASC**
 Analytical Batch: **3D12016**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.19U	0.19	0.052
208-96-8	Acenaphthylene	0.19U	0.19	0.046
*120-12-7	Anthracene	0.17J	0.19	0.045
56-55-3	Benzo(a)anthracene	0.24	0.19	0.031
50-32-8	Benzo(a)pyrene	0.25	0.19	0.026
*205-99-2	Benzo(b)fluoranthene	0.26	0.19	0.021
*207-08-9	Benzo(k)fluoranthene	0.21	0.19	0.022
*191-24-2	Benzo(g,h,i)perylene	0.10J	0.19	0.021
*218-01-9	Chrysene	0.30	0.19	0.043
53-70-3	Dibenz(a,h)anthracene	0.19U	0.19	0.021
206-44-0	Fluoranthene	0.36	0.19	0.050
86-73-7	Fluorene	0.19U	0.19	0.045
193-39-5	Indeno(1,2,3-cd)pyrene	0.19U	0.19	0.030
91-57-6	2-Methylnaphthalene	0.19U	0.19	0.051
91-20-3	Naphthalene	0.19U	0.19	0.062
85-01-8	Phenanthrene	0.24	0.19	0.045
129-00-0	Pyrene	0.53	0.19	0.048

Surrogates:

* Nitrobenzene-d5

2-Fluorobiphenyl

o-Terphenyl

% Recovery

71

66

68

Control Limits

35-100

45-105

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS215-0002**
Lab Sample ID: **1304171-10**
Matrix: **Soil**
Percent Solids: **90**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:00**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	7.2	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 11:08	DSC	1303272
Lead	370	5.0	0.33	mg/kg dry wt.	50	USEPA-6020A	04/12/13 12:43	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS215-0002**
Lab Sample ID: **1304171-10**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:00**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	90	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS216-0002**
 Lab Sample ID: **1304171-11**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **10**
 QC Batch: **1303247**
 Percent Solids: **81**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:05**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13 By: ALK**
 Analyzed: **04/11/13 By: DWJ**
 Analytical Batch: **3D12027**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.21U	0.21	0.057
208-96-8	Acenaphthylene	0.21U	0.21	0.052
120-12-7	Anthracene	0.21U	0.21	0.050
56-55-3	Benzo(a)anthracene	0.18J	0.21	0.034
50-32-8	Benzo(a)pyrene	0.20J	0.21	0.029
*205-99-2	Benzo(b)fluoranthene	0.17J	0.21	0.024
*207-08-9	Benzo(k)fluoranthene	0.15J	0.21	0.024
191-24-2	Benzo(g,h,i)perylene	0.12J	0.21	0.023
218-01-9	Chrysene	0.20J	0.21	0.048
*53-70-3	Dibenz(a,h)anthracene	0.21U	0.21	0.024
206-44-0	Fluoranthene	0.27	0.21	0.055
86-73-7	Fluorene	0.21U	0.21	0.050
*193-39-5	Indeno(1,2,3-cd)pyrene	0.091J	0.21	0.033
91-57-6	2-Methylnaphthalene	0.21U	0.21	0.057
91-20-3	Naphthalene	0.21U	0.21	0.069
85-01-8	Phenanthrene	0.11J	0.21	0.051
129-00-0	Pyrene	0.35	0.21	0.053

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5
63
35-100
2-Fluorobiphenyl
73
45-105
o-Terphenyl
76
30-125

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS216-0002**
 Lab Sample ID: **1304171-11**
 Matrix: **Soil**
 Percent Solids: **81**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:05**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.8	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 11:10	DSC	1303272
Lead	180	2.5	0.16	mg/kg dry wt.	25	USEPA-6020A	04/12/13 12:45	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: USCG Atwater Facility
Client Sample ID: **DASS216-0002**
Lab Sample ID: **1304171-11**
Matrix: Soil

Work Order: **1304171**
Description: 112G02435
Sampled: 04/10/13 11:05
Sampled By: Tetra Tech NUS
Received: 04/10/13 17:15

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	81	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS217-0002**
 Lab Sample ID: **1304171-12**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **50**
 QC Batch: **1303247**
 Percent Solids: **87**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:10**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13 By: ALK**
 Analyzed: **04/12/13 By: DWJ**
 Analytical Batch: **3D12027**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.96U	0.96	0.27
208-96-8	Acenaphthylene	0.96U	0.96	0.24
120-12-7	Anthracene	0.48J	0.96	0.23
56-55-3	Benzo(a)anthracene	2.0	0.96	0.16
50-32-8	Benzo(a)pyrene	2.1	0.96	0.13
*205-99-2	Benzo(b)fluoranthene	2.2	0.96	0.11
*207-08-9	Benzo(k)fluoranthene	1.2	0.96	0.11
191-24-2	Benzo(g,h,i)perylene	1.4	0.96	0.11
218-01-9	Chrysene	2.1	0.96	0.22
53-70-3	Dibenz(a,h)anthracene	0.28J	0.96	0.11
206-44-0	Fluoranthene	3.7	0.96	0.26
*86-73-7	Fluorene	0.96U	0.96	0.23
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	0.96	0.15
91-57-6	2-Methylnaphthalene	0.96U	0.96	0.26
91-20-3	Naphthalene	0.96U	0.96	0.32
85-01-8	Phenanthrene	1.8	0.96	0.24
129-00-0	Pyrene	4.9	0.96	0.25

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS217-0002**
Lab Sample ID: **1304171-12**
Matrix: **Soil**
Percent Solids: **87**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:10**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	9.0	0.46	0.076	mg/kg dry wt.	5	USEPA-6020A	04/12/13 13:36	DSC	1303272
Lead	530	9.3	0.61	mg/kg dry wt.	100	USEPA-6020A	04/12/13 12:48	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS217-0002**
Lab Sample ID: **1304171-12**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:10**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	87	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS218-0002**
 Lab Sample ID: **1304171-13**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **10**
 QC Batch: **1303247**
 Percent Solids: **85**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:15**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13 By: ALK**
 Analyzed: **04/12/13 By: DWJ**
 Analytical Batch: **3D12027**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.27	0.20	0.055
208-96-8	Acenaphthylene	0.20U	0.20	0.049
120-12-7	Anthracene	0.92	0.20	0.047
56-55-3	Benzo(a)anthracene	2.0	0.20	0.033
50-32-8	Benzo(a)pyrene	1.8	0.20	0.027
*205-99-2	Benzo(b)fluoranthene	2.1	0.20	0.023
*207-08-9	Benzo(k)fluoranthene	1.1	0.20	0.023
191-24-2	Benzo(g,h,i)perylene	1.1	0.20	0.022
218-01-9	Chrysene	2.1	0.20	0.046
*53-70-3	Dibenz(a,h)anthracene	0.22	0.20	0.023
206-44-0	Fluoranthene	3.9	0.20	0.053
86-73-7	Fluorene	0.25	0.20	0.048
193-39-5	Indeno(1,2,3-cd)pyrene	0.90	0.20	0.032
91-57-6	2-Methylnaphthalene	0.20U	0.20	0.054
91-20-3	Naphthalene	0.20U	0.20	0.066
85-01-8	Phenanthrene	3.0	0.20	0.048
129-00-0	Pyrene	5.0	0.20	0.051

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

60

35-100

2-Fluorobiphenyl

71

45-105

o-Terphenyl

72

30-125

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS218-0002**
 Lab Sample ID: **1304171-13**
 Matrix: **Soil**
 Percent Solids: **85**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:15**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	9.2	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 11:16	DSC	1303272
Lead	660	10	0.66	mg/kg dry wt.	100	USEPA-6020A	04/12/13 12:51	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS218-0002**
Lab Sample ID: **1304171-13**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:15**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	85	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS219-0002**
 Lab Sample ID: **1304171-14**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **20**
 QC Batch: **1303247**
 Percent Solids: **79**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:20**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13 By: ALK**
 Analyzed: **04/12/13 By: ASC**
 Analytical Batch: **3D12034**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.92	0.42	0.12
208-96-8	Acenaphthylene	0.42U	0.42	0.10
120-12-7	Anthracene	3.5	0.42	0.10
56-55-3	Benzo(a)anthracene	7.0	0.42	0.069
50-32-8	Benzo(a)pyrene	5.6	0.42	0.058
*205-99-2	Benzo(b)fluoranthene	6.1	0.42	0.048
*207-08-9	Benzo(k)fluoranthene	4.7	0.42	0.049
191-24-2	Benzo(g,h,i)perylene	2.9	0.42	0.048
218-01-9	Chrysene	6.0	0.42	0.098
*53-70-3	Dibenz(a,h)anthracene	0.64	0.42	0.048
206-44-0	Fluoranthene	13	0.42	0.11
86-73-7	Fluorene	1.4	0.42	0.10
193-39-5	Indeno(1,2,3-cd)pyrene	2.7	0.42	0.067
*91-57-6	2-Methylnaphthalene	0.42U	0.42	0.11
*91-20-3	Naphthalene	0.42U	0.42	0.14
85-01-8	Phenanthrene	8.9	0.42	0.10
129-00-0	Pyrene	14	0.42	0.11

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS219-0002**
Lab Sample ID: **1304171-14**
Matrix: **Soil**
Percent Solids: **79**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:20**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.0	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 11:19	DSC	1303272
Lead	270	5.0	0.33	mg/kg dry wt.	50	USEPA-6020A	04/12/13 12:54	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS219-0002**
Lab Sample ID: **1304171-14**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:20**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	79	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS220-0002**
Lab Sample ID: **1304171-15**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303247**
Percent Solids: **88**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:25**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**
Prepared: **04/11/13 By: ALK**
Analyzed: **04/11/13 By: ASC**
Analytical Batch: **3D12016**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.061	0.019	0.0053
208-96-8	Acenaphthylene	0.0068J	0.019	0.0048
120-12-7	Anthracene	0.25	0.019	0.0046
56-55-3	Benzo(a)anthracene	0.38	0.019	0.0031
50-32-8	Benzo(a)pyrene	0.27	0.019	0.0026
*205-99-2	Benzo(b)fluoranthene	0.27	0.019	0.0022
*207-08-9	Benzo(k)fluoranthene	0.16	0.019	0.0022
191-24-2	Benzo(g,h,i)perylene	0.13	0.019	0.0022
218-01-9	Chrysene	0.29	0.019	0.0044
*53-70-3	Dibenz(a,h)anthracene	0.031	0.019	0.0022
206-44-0	Fluoranthene	0.61	0.019	0.0051
86-73-7	Fluorene	0.091	0.019	0.0046
193-39-5	Indeno(1,2,3-cd)pyrene	0.12	0.019	0.0031
91-57-6	2-Methylnaphthalene	0.0068J	0.019	0.0052
91-20-3	Naphthalene	0.019U	0.019	0.0064
85-01-8	Phenanthrene	0.65	0.019	0.0047
129-00-0	Pyrene	0.71	0.019	0.0049

Surrogates:

Nitrobenzene-d5

2-Fluorobiphenyl

o-Terphenyl

% Recovery

77

80

82

Control Limits

35-100

45-105

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS220-0002**
Lab Sample ID: **1304171-15**
Matrix: **Soil**
Percent Solids: **88**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:25**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	18	0.50	0.082	mg/kg dry wt.	5	USEPA-6020A	04/12/13 13:00	DSC	1303272
Lead	5900	100	6.6	mg/kg dry wt.	1000	USEPA-6020A	04/12/13 13:45	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS220-0002**
Lab Sample ID: **1304171-15**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:25**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	88	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS220-0002**
Lab Sample ID: **1304171-15RE1**
Matrix: **Soil**
Percent Solids: **88**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:25**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Lead	13	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/16/13 10:38	MSM	1303384

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS221-0002**
 Lab Sample ID: **1304171-16**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **1**
 QC Batch: **1303247**
 Percent Solids: **88**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:30**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13 By: ALK**
 Analyzed: **04/11/13 By: ASC**
 Analytical Batch: **3D12016**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.013J	0.019	0.0053
208-96-8	Acenaphthylene	0.0054J	0.019	0.0048
120-12-7	Anthracene	0.036	0.019	0.0046
56-55-3	Benzo(a)anthracene	0.11	0.019	0.0031
50-32-8	Benzo(a)pyrene	0.10	0.019	0.0026
*205-99-2	Benzo(b)fluoranthene	0.11	0.019	0.0022
*207-08-9	Benzo(k)fluoranthene	0.084	0.019	0.0022
191-24-2	Benzo(g,h,i)perylene	0.066	0.019	0.0022
218-01-9	Chrysene	0.11	0.019	0.0044
53-70-3	Dibenz(a,h)anthracene	0.017J	0.019	0.0022
206-44-0	Fluoranthene	0.19	0.019	0.0051
*86-73-7	Fluorene	0.013J	0.019	0.0046
193-39-5	Indeno(1,2,3-cd)pyrene	0.051	0.019	0.0031
91-57-6	2-Methylnaphthalene	0.019U	0.019	0.0052
91-20-3	Naphthalene	0.019U	0.019	0.0064
85-01-8	Phenanthrene	0.13	0.019	0.0047
129-00-0	Pyrene	0.22	0.019	0.0049

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5
78
35-100
2-Fluorobiphenyl
80
45-105
o-Terphenyl
80
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS221-0002**
Lab Sample ID: **1304171-16**
Matrix: **Soil**
Percent Solids: **88**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:30**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.1	0.093	0.015	mg/kg dry wt.	1	USEPA-6020A	04/12/13 11:31	DSC	1303272
Lead	35	0.47	0.031	mg/kg dry wt.	5	USEPA-6020A	04/12/13 13:02	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS221-0002**
Lab Sample ID: **1304171-16**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:30**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	88	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS222-0002**
 Lab Sample ID: **1304171-17**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **10**
 QC Batch: **1303247**
 Percent Solids: **84**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:35**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13 By: ALK**
 Analyzed: **04/12/13 By: DWJ**
 Analytical Batch: **3D12027**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.20U	0.20	0.055
208-96-8	Acenaphthylene	0.20U	0.20	0.050
120-12-7	Anthracene	0.12J	0.20	0.048
*56-55-3	Benzo(a)anthracene	0.60	0.20	0.033
*50-32-8	Benzo(a)pyrene	0.72	0.20	0.027
*205-99-2	Benzo(b)fluoranthene	0.78	0.20	0.023
*207-08-9	Benzo(k)fluoranthene	0.45	0.20	0.023
191-24-2	Benzo(g,h,i)perylene	0.44	0.20	0.022
*218-01-9	Chrysene	0.62	0.20	0.046
*53-70-3	Dibenz(a,h)anthracene	0.097J	0.20	0.023
*206-44-0	Fluoranthene	0.89	0.20	0.053
*86-73-7	Fluorene	0.20U	0.20	0.048
193-39-5	Indeno(1,2,3-cd)pyrene	0.37	0.20	0.032
91-57-6	2-Methylnaphthalene	0.20U	0.20	0.054
*91-20-3	Naphthalene	0.20U	0.20	0.067
85-01-8	Phenanthrene	0.37	0.20	0.049
*129-00-0	Pyrene	1.1	0.20	0.051

Surrogates:
% Recovery
Control Limits

* Nitrobenzene-d5

62

35-100

2-Fluorobiphenyl

74

45-105

o-Terphenyl

83

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS222-0002**
Lab Sample ID: **1304171-17**
Matrix: **Soil**
Percent Solids: **84**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:35**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
*Arsenic	5.9	0.094	0.015	mg/kg dry wt.	1	USEPA-6020A	04/12/13 11:34	DSC	1303272
*Lead	720	19	1.2	mg/kg dry wt.	200	USEPA-6020A	04/12/13 13:48	DSC	1303272

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS222-0002**
Lab Sample ID: **1304171-17**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:35**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	84	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS223-0002**
 Lab Sample ID: **1304171-18**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **10**
 QC Batch: **1303247**
 Percent Solids: **85**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:40**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13** By: **ALK**
 Analyzed: **04/12/13** By: **DWJ**
 Analytical Batch: **3D12027**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.20U	0.20	0.054
208-96-8	Acenaphthylene	0.20U	0.20	0.049
120-12-7	Anthracene	0.22	0.20	0.047
56-55-3	Benzo(a)anthracene	1.4	0.20	0.032
50-32-8	Benzo(a)pyrene	1.3	0.20	0.027
*205-99-2	Benzo(b)fluoranthene	1.6	0.20	0.022
*207-08-9	Benzo(k)fluoranthene	0.79	0.20	0.023
191-24-2	Benzo(g,h,i)perylene	0.70	0.20	0.022
218-01-9	Chrysene	1.5	0.20	0.046
*53-70-3	Dibenz(a,h)anthracene	0.16J	0.20	0.022
206-44-0	Fluoranthene	2.4	0.20	0.053
86-73-7	Fluorene	0.20U	0.20	0.047
193-39-5	Indeno(1,2,3-cd)pyrene	0.63	0.20	0.032
91-57-6	2-Methylnaphthalene	0.20U	0.20	0.054
*91-20-3	Naphthalene	0.20U	0.20	0.066
85-01-8	Phenanthrene	0.21	0.20	0.048
129-00-0	Pyrene	2.4	0.20	0.051

Surrogates:
% Recovery
Control Limits

* Nitrobenzene-d5

57

35-100

2-Fluorobiphenyl

62

45-105

o-Terphenyl

75

30-125

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS223-0002**
 Lab Sample ID: **1304171-18**
 Matrix: **Soil**
 Percent Solids: **85**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 11:40**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	4.2	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/12/13 11:48	DSC	1303272
Lead	16	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/12/13 13:31	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS223-0002**
Lab Sample ID: **1304171-18**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 11:40**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	85	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB-FD-02**
 Lab Sample ID: **1304171-19**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **10**
 QC Batch: **1303247**
 Percent Solids: **84**

Work Order: **1304171**
 Description: **112G02435**
 Sampled: **04/10/13 00:00**
 Sampled By: **Tetra Tech NUS**
 Received: **04/10/13 17:15**
 Prepared: **04/11/13 By: ALK**
 Analyzed: **04/12/13 By: DWJ**
 Analytical Batch: **3D12027**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.21	0.20	0.055
208-96-8	Acenaphthylene	0.058J	0.20	0.050
120-12-7	Anthracene	0.53	0.20	0.048
56-55-3	Benzo(a)anthracene	1.4	0.20	0.033
50-32-8	Benzo(a)pyrene	1.4	0.20	0.027
*205-99-2	Benzo(b)fluoranthene	1.6	0.20	0.023
*207-08-9	Benzo(k)fluoranthene	0.92	0.20	0.023
191-24-2	Benzo(g,h,i)perylene	0.86	0.20	0.022
218-01-9	Chrysene	1.2	0.20	0.046
*53-70-3	Dibenz(a,h)anthracene	0.19J	0.20	0.023
206-44-0	Fluoranthene	2.3	0.20	0.053
86-73-7	Fluorene	0.19J	0.20	0.048
193-39-5	Indeno(1,2,3-cd)pyrene	0.76	0.20	0.032
*91-57-6	2-Methylnaphthalene	0.20U	0.20	0.054
91-20-3	Naphthalene	0.20U	0.20	0.067
85-01-8	Phenanthrene	1.7	0.20	0.048
129-00-0	Pyrene	2.6	0.20	0.051

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

69

35-100

2-Fluorobiphenyl

76

45-105

o-Terphenyl

87

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB-FD-02**
Lab Sample ID: **1304171-19**
Matrix: **Soil**
Percent Solids: **84**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 00:00**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	4.8	0.092	0.015	mg/kg dry wt.	1	USEPA-6020A	04/12/13 11:51	DSC	1303272
Lead	470	9.2	0.61	mg/kg dry wt.	100	USEPA-6020A	04/12/13 13:34	DSC	1303272



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB-FD-02**
Lab Sample ID: **1304171-19**
Matrix: **Soil**

Work Order: **1304171**
Description: **112G02435**
Sampled: **04/10/13 00:00**
Sampled By: **Tetra Tech NUS**
Received: **04/10/13 17:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	84	0.1	0.1	%	1	USEPA-3550C	04/11/13 13:40	BAR	1303262



STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8270C

Sample/Analyte:	1304171-06	DASB243-0305	Dibenz(a,h)anthracene
	1304171-07	DASB-FD-01	Benzo(b)fluoranthene
	1304171-07	DASB-FD-01	Benzo(k)fluoranthene
	1304171-07	DASB-FD-01	Dibenz(a,h)anthracene
	1304171-08	DASS213-0002	2-Methylnaphthalene
	1304171-08	DASS213-0002	Acenaphthylene
	1304171-08	DASS213-0002	Benzo(b)fluoranthene
	1304171-08	DASS213-0002	Benzo(k)fluoranthene
	1304171-08	DASS213-0002	Fluorene
	1304171-09	DASS214-0002	2-Methylnaphthalene
	1304171-09	DASS214-0002	Anthracene
	1304171-09	DASS214-0002	Benzo(b)fluoranthene
	1304171-09	DASS214-0002	Benzo(k)fluoranthene
	1304171-09	DASS214-0002	Chrysene
	1304171-09	DASS214-0002	Nitrobenzene-d5
	1304171-10	DASS215-0002	Anthracene
	1304171-10	DASS215-0002	Benzo(b)fluoranthene
	1304171-10	DASS215-0002	Benzo(g,h,i)perylene
	1304171-10	DASS215-0002	Benzo(k)fluoranthene
	1304171-10	DASS215-0002	Chrysene
	1304171-10	DASS215-0002	Nitrobenzene-d5
	1304171-11	DASS216-0002	Benzo(b)fluoranthene
	1304171-11	DASS216-0002	Benzo(k)fluoranthene
	1304171-11	DASS216-0002	Dibenz(a,h)anthracene
	1304171-11	DASS216-0002	Indeno(1,2,3-cd)pyrene
	1304171-12	DASS217-0002	Benzo(b)fluoranthene
	1304171-12	DASS217-0002	Benzo(k)fluoranthene
	1304171-12	DASS217-0002	Fluorene
	1304171-13	DASS218-0002	Benzo(b)fluoranthene
	1304171-13	DASS218-0002	Benzo(k)fluoranthene
	1304171-13	DASS218-0002	Dibenz(a,h)anthracene
	1304171-14	DASS219-0002	2-Methylnaphthalene
	1304171-14	DASS219-0002	Benzo(b)fluoranthene
	1304171-14	DASS219-0002	Benzo(k)fluoranthene
	1304171-14	DASS219-0002	Dibenz(a,h)anthracene
	1304171-14	DASS219-0002	Naphthalene
	1304171-15	DASS220-0002	Benzo(b)fluoranthene
	1304171-15	DASS220-0002	Benzo(k)fluoranthene
	1304171-15	DASS220-0002	Dibenz(a,h)anthracene
	1304171-16	DASS221-0002	Benzo(b)fluoranthene
	1304171-16	DASS221-0002	Benzo(k)fluoranthene
	1304171-16	DASS221-0002	Fluorene
	1304171-17	DASS222-0002	Benzo(b)fluoranthene
	1304171-17	DASS222-0002	Benzo(k)fluoranthene
	1304171-17	DASS222-0002	Dibenz(a,h)anthracene
	1304171-17	DASS222-0002	Fluorene
	1304171-17	DASS222-0002	Naphthalene
	1304171-17	DASS222-0002	Nitrobenzene-d5

STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8270C

Sample/Analyte:	1304171-18	DASS223-0002	Benzo(b)fluoranthene
	1304171-18	DASS223-0002	Benzo(k)fluoranthene
	1304171-18	DASS223-0002	Dibenz(a,h)anthracene
	1304171-18	DASS223-0002	Naphthalene
	1304171-18	DASS223-0002	Nitrobenzene-d5
	1304171-19	DASB-FD-02	2-Methylnaphthalene
	1304171-19	DASB-FD-02	Benzo(b)fluoranthene
	1304171-19	DASB-FD-02	Benzo(k)fluoranthene
	1304171-19	DASB-FD-02	Dibenz(a,h)anthracene

Qualification: The RL for this analysis has been elevated due to sample matrix interference.

Analysis: USEPA-8270C

Sample:	1304171-09	DASS214-0002
	1304171-10	DASS215-0002
	1304171-11	DASS216-0002
	1304171-12	DASS217-0002
	1304171-17	DASS222-0002
	1304171-18	DASS223-0002

Qualification: Surrogate results are unavailable due to positive results in the sample, resulting in a dilution. Surrogate concentrations were diluted below the calibration range.

Analysis: USEPA-8270C

Sample:	1304171-06	DASB243-0305
	1304171-14	DASS219-0002

Qualification: Surrogate results are unavailable due to sample matrix interference(s), resulting in a dilution. Surrogate concentrations were diluted below the calibration range.

Analysis: USEPA-8270C

Sample:	1304171-12	DASS217-0002
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STATEMENT OF DATA QUALIFICATIONS

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte: 1304171-17 DASS222-0002 Arsenic

Qualification: The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte: 1304171-17 DASS222-0002 Arsenic

Qualification: Matrix QC results are not available due to sample dilution.

Analysis: USEPA-6020A

Sample/Analyte: 1304171-17 DASS222-0002 Lead

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was greater than or equal to 4 times the spiked amount; matrix QC results are not available.

Analysis: USEPA-6020A

Sample/Analyte: 1304171-01 DASB238-0305 Lead



TETRA TECH NUS, INC.

CART 10
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CHAIN OF CUSTODY

NUMBER *No* 2283

PAGE *1* OF *2*

PROJECT NO: <i>112G02435</i>		FACILITY: <i>USCG - Alwater</i>		PROJECT MANAGER <i>Joe Logan</i>		PHONE NUMBER <i>412-921-7231</i>		LABORATORY NAME AND CONTACT: <i>TriMatrix / Gary Wood</i>			
SAMPLERS (SIGNATURE) <i>[Signature]</i>				FIELD OPERATIONS LEADER <i>Jim Goerd</i>		PHONE NUMBER <i>412-443-0244</i>		ADDRESS <i>5560 Corp Exchange Ct. SE</i>			
				CARRIER/WAYBILL NUMBER <i>Lab Pick Up</i>				CITY, STATE <i>Grand Rapids, MI</i>			
STANDARD TAT <input type="checkbox"/> RUSH TAT <input type="checkbox"/> <input checked="" type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day						CONTAINER TYPE PLASTIC (P) or GLASS (G) <i>G</i>					
						PRESERVATIVE USED					
DATE YEAR <i>2013</i>						TYPE OF ANALYSIS <i>Pb, As, PAH 400 G</i>					
TIME				SAMPLE ID		LOCATION ID					
TOP DEPTH (FT)		BOTTOM DEPTH (FT)		MATRIX (GW, SO, SW, SD, QC, ETC.)		COLLECTION METHOD GRAB (G) COMP (C)		NO. OF CONTAINERS <i>(500ML Jar)</i>			
										COMMENTS	
1. <i>4/9</i>		<i>1350</i>		<i>DASB238-0205</i>		<i>238</i>		<i>3 5</i>		<i>SO G 2 2</i>	
2. <i>4/9</i>		<i>1352</i>		<i>DASB239-0205</i>		<i>239</i>		<i>3 5</i>			
3. <i>4/9</i>		<i>1358</i>		<i>DASB240-0205</i>		<i>240</i>		<i>3 5</i>			
4. <i>4/9</i>		<i>1402</i>		<i>DASB241-0205</i>		<i>241</i>		<i>3 5</i>			
5. <i>4/9</i>		<i>1412</i>		<i>DASB242-0205</i>		<i>242</i>		<i>3 5</i>			
6. <i>4/9</i>		<i>1408</i>		<i>DASB243-0205</i>		<i>243</i>		<i>3 5</i>			
7. <i>4/9</i>		<i>0000</i>		<i>DASB-FD-01</i>		<i>QC</i>		<i>- -</i>		<i>QC G 1 1</i>	
8. <i>4/10</i>		<i>1050</i>		<i>DASS213-0002</i>		<i>213</i>		<i>0 2</i>		<i>SO 1 1</i>	
9. <i>4/10</i>		<i>1055</i>		<i>DASS214-0002</i>		<i>214</i>		<i>1 1</i>			
10. <i>4/10</i>		<i>1100</i>		<i>DASS215-0002</i>		<i>215</i>		<i>1 1</i>			
11. <i>4/10</i>		<i>1105</i>		<i>DASS216-0002</i>		<i>216</i>		<i>1 1</i>			
12. <i>4/10</i>		<i>1110</i>		<i>DASS217-0002</i>		<i>217</i>		<i>1 1</i>			
13. <i>4/10</i>		<i>1115</i>		<i>DASS218-0002</i>		<i>218</i>		<i>1 1</i>			
1. RELINQUISHED BY <i>[Signature]</i>				DATE <i>4/10/13</i>		TIME <i>1330</i>		1. RECEIVED BY <i>[Signature]</i>			
2. RELINQUISHED BY <i>[Signature]</i>				DATE <i>4/10/13</i>		TIME <i>1415</i>		2. RECEIVED BY <i>[Signature]</i>			
3. RELINQUISHED BY <i>[Signature]</i>				DATE <i>4-10-13</i>		TIME <i>1715</i>		3. RECEIVED BY <i>[Signature]</i>			
COMMENTS <i>SB242 - Potentially high PAHs</i>											

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)

4/02H



TETRA TECH NUS, INC.

Chart 10
(2-21)

CHAIN OF CUSTODY

NUMBER **No 2284**

PAGE **2** OF **2**

PROJECT NO: 112G02435		FACILITY: USCG-Atlantic		PROJECT MANAGER Joe Logan		PHONE NUMBER 412 921 7231		LABORATORY NAME AND CONTACT: Trimatrix/Gary Wood	
SAMPLERS (SIGNATURE) <i>[Signature]</i>				FIELD OPERATIONS LEADER Jim Gorman		PHONE NUMBER 412 473 0277		ADDRESS 5560 Corp Exchange Ct. SE	
				CARRIER/WAYBILL NUMBER Lab Pick Up				CITY, STATE Grand Rapids, MI	
STANDARD TAT <input type="checkbox"/> RUSH TAT <input type="checkbox"/> <input checked="" type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day						CONTAINER TYPE PLASTIC (P) or GLASS (G) G			
						PRESERVATIVE USED			
DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SO, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	NO. OF CONTAINERS <i>(500 ml Jar)</i>	TYPE OF ANALYSIS Pb, As, PAHs, VOC
14	4/10	1120 DASS219-0002	219	0	2	SO	G	1	
15		1125 DASS220-0002	220					1	
16		1130 DASS221-0002	221					1	
17		1135 DASS222-0002	222					2	
18		1140 DASS223-0002	223					1	
19		0000 DASSB-FD-02	QC			QC		1	
1. RELINQUISHED BY <i>[Signature]</i>				DATE 4/10/13		TIME 1330		1. RECEIVED BY <i>[Signature]</i>	
2. RELINQUISHED BY <i>[Signature]</i>				DATE 4/10/13		TIME 1415		2. RECEIVED BY <i>[Signature]</i>	
3. RELINQUISHED BY <i>[Signature]</i>				DATE 4/10/13		TIME 1415		3. RECEIVED BY D. Dardin	
COMMENTS									

DISTRIBUTION


WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)

4/02R

SAMPLE RECEIVING / LOG-IN CHECKLIST

 TRIMATRIX LABORATORIES		Client: <u>TETRA TECH</u> Receipt Record Page/Line #: <u>2-21</u>		Work Order #: <u>130471</u> New / Add To Project/Chemical: <u>Yes</u>	
Recorded By (Initials/Date): <u>SN 4-10-13</u>		<input checked="" type="checkbox"/> Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other:		Qty Received: <u>2</u> <input checked="" type="checkbox"/> IR Gun (#202) Thermometer Used: <input type="checkbox"/> Digital Thermometer (#54) <input type="checkbox"/> See Additional Cooler Information Form <input type="checkbox"/> Other (#):	

Cooler #: <u>1191596</u> Time: <u>1758</u> Custody Seals: <input checked="" type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact Coolant Location: <u>Dispersed / Top / Middle / Bottom</u> Coolant/Temperature Taken Via: <input checked="" type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers Alternate Temperature Taken Via: <input checked="" type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container	Cooler #: <u>1191223</u> Time: <u>1805</u> Custody Seals: <input checked="" type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact Coolant Location: <u>Dispersed / Top / Middle / Bottom</u> Coolant/Temperature Taken Via: <input checked="" type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers Alternate Temperature Taken Via: <input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container	Cooler #: Time: Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact Coolant Location: <u>Dispersed / Top / Middle / Bottom</u> Coolant/Temperature Taken Via: <input type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers Alternate Temperature Taken Via: <input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container	Cooler #: Time: Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact Coolant Location: <u>Dispersed / Top / Middle / Bottom</u> Coolant/Temperature Taken Via: <input type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers Alternate Temperature Taken Via: <input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container
---	--	---	---

Recorded °C: <u>0</u> Correction Factor °C: <u>0</u> Actual °C: <u>0</u> Temp Blank: <u>0</u> TB location: Representative / Not Representative <table border="1" style="width: 100%;"> <tr><td>1</td><td><u>7.9</u></td><td><u>0</u></td><td><u>7.9</u></td></tr> <tr><td>2</td><td><u>7.5</u></td><td><u>0</u></td><td><u>7.5</u></td></tr> <tr><td>3</td><td><u>7.3</u></td><td><u>0</u></td><td><u>7.3</u></td></tr> <tr><td colspan="4" style="text-align: center;">Average °C: <u>7.6</u></td></tr> </table> <input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?	1	<u>7.9</u>	<u>0</u>	<u>7.9</u>	2	<u>7.5</u>	<u>0</u>	<u>7.5</u>	3	<u>7.3</u>	<u>0</u>	<u>7.3</u>	Average °C: <u>7.6</u>				Recorded °C: <u>0</u> Correction Factor °C: <u>0</u> Actual °C: <u>0</u> Temp Blank: <u>0</u> TB location: Representative / Not Representative <table border="1" style="width: 100%;"> <tr><td>1</td><td><u>5.2</u></td><td><u>0</u></td><td><u>5.2</u></td></tr> <tr><td>2</td><td><u>7.6</u></td><td><u>0</u></td><td><u>7.6</u></td></tr> <tr><td>3</td><td><u>3.8</u></td><td><u>0</u></td><td><u>3.8</u></td></tr> <tr><td colspan="4" style="text-align: center;">Average °C: <u>5.5</u></td></tr> </table> <input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?	1	<u>5.2</u>	<u>0</u>	<u>5.2</u>	2	<u>7.6</u>	<u>0</u>	<u>7.6</u>	3	<u>3.8</u>	<u>0</u>	<u>3.8</u>	Average °C: <u>5.5</u>				Recorded °C: Correction Factor °C: Actual °C: Temp Blank: TB location: Representative / Not Representative <table border="1" style="width: 100%;"> <tr><td>1</td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td></tr> <tr><td colspan="4" style="text-align: center;">Average °C:</td></tr> </table> <input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?	1				2				3				Average °C:				Recorded °C: Correction Factor °C: Actual °C: Temp Blank: TB location: Representative / Not Representative <table border="1" style="width: 100%;"> <tr><td>1</td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td></tr> <tr><td colspan="4" style="text-align: center;">Average °C:</td></tr> </table> <input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?	1				2				3				Average °C:			
1	<u>7.9</u>	<u>0</u>	<u>7.9</u>																																																																
2	<u>7.5</u>	<u>0</u>	<u>7.5</u>																																																																
3	<u>7.3</u>	<u>0</u>	<u>7.3</u>																																																																
Average °C: <u>7.6</u>																																																																			
1	<u>5.2</u>	<u>0</u>	<u>5.2</u>																																																																
2	<u>7.6</u>	<u>0</u>	<u>7.6</u>																																																																
3	<u>3.8</u>	<u>0</u>	<u>3.8</u>																																																																
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If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input checked="" type="checkbox"/> Chain of Custody record(s)? If No, Initiated By _____ <input type="checkbox"/> Received for Lab Signed/Date/Time? <input type="checkbox"/> Shipping document? <input type="checkbox"/> Other: COC Information <input type="checkbox"/> Trimatrix COC <input checked="" type="checkbox"/> Other: <u>TETRA TECH</u> COC ID Numbers: <u>#2283 + #2284</u>	Check Sample Preservation N/A <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> Average sample temperature ≤ 6° C? <input type="checkbox"/> Was thermal preservation required? If "No", Project Chemist Approval Initials: _____ If "Yes", Completed Non Con. Cooler - Cont. Inventory Form? <input checked="" type="checkbox"/> Completed Sample Preservation Verification Form? <input checked="" type="checkbox"/> Samples chemically preserved correctly? If "No", added orange tag? <input checked="" type="checkbox"/> Received pre-preserved VOC soils? <input type="checkbox"/> MeOH <input type="checkbox"/> Na ₂ SO ₄
---	--

Check COC for Accuracy Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> Analysis Requested? <input checked="" type="checkbox"/> Sample ID matches COC? <input checked="" type="checkbox"/> Sample Date and Time matches COC? <input checked="" type="checkbox"/> Container type completed on COC? <input checked="" type="checkbox"/> All container types indicated are received?	Check for Short Hold-Time Prep/Analyses <input type="checkbox"/> Bacteriological <input type="checkbox"/> Air Bags <input type="checkbox"/> EnCores / Methanol Pre-Preserved <input type="checkbox"/> Formaldehyde/Aldehyde <input type="checkbox"/> Glass-tagged containers <input type="checkbox"/> Yellow/White-tagged 4L ambers (SV Prop-Lab)
--	--

Sample Condition Summary N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> Broken containers/bags? <input type="checkbox"/> Missing or incomplete labels? <input type="checkbox"/> Illegible information on labels? <input type="checkbox"/> Low volume received? <input type="checkbox"/> Inappropriate or non-Trimatrix containers received? <input type="checkbox"/> VOC vials / TOX containers have headspace? <input type="checkbox"/> Extra sample locations / containers not listed on COC?	Notes <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> AFTER HOURS ONLY: COPIES OF COC TO LAB AREA(S) <input type="checkbox"/> NONE RECEIVED <input checked="" type="checkbox"/> RECEIVED, COCs TO LAB(S) </div> <div style="margin-top: 10px;"> <input type="checkbox"/> Trip Blank received <input type="checkbox"/> Trip Blank not listed on COC Cooler Received (Date/Time): <u>SN 4-10-13</u> Paperwork Delivered (Date/Time): <u>4-10-13</u> <input type="checkbox"/> Yes <input type="checkbox"/> No </div>
---	--



April 15, 2013

TETRA TECH NUS - Pittsburgh
Attn: Mr. Joe Logan
661 Anderson Drive, Foster Plaza 7
Pittsburgh, PA 15220

Project: USCG Atwater Facility

Dear Mr. Joe Logan,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

Work Order	Received	Description
1304185	04/11/2013	Laboratory Services

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

ACLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/12-056-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003059); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#83658); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/48855); North Carolina DNRE (#659); Texas CEQ (#T104704495-13-3); Virginia DCLS (#460153/1622); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-12-00236).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications section of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary L. Wood", written over a light gray dotted background.

Gary L. Wood
Project Chemist

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS201-0002**
 Lab Sample ID: **1304185-01**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **5**
 QC Batch: **1303302**
 Percent Solids: **81**

Work Order: **1304185**
 Description: **Laboratory Services**
 Sampled: **04/11/13 07:50**
 Sampled By: **Client**
 Received: **04/11/13 19:15**
 Prepared: **04/12/13 By: JTS**
 Analyzed: **04/12/13 By: ASC**
 Analytical Batch: **3D12034**

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
*83-32-9	Acenaphthene	0.10U	0.10	0.029
208-96-8	Acenaphthylene	0.10U	0.10	0.026
120-12-7	Anthracene	0.055J	0.10	0.025
56-55-3	Benzo(a)anthracene	0.27	0.10	0.017
50-32-8	Benzo(a)pyrene	0.23	0.10	0.014
*205-99-2	Benzo(b)fluoranthene	0.28	0.10	0.012
*207-08-9	Benzo(k)fluoranthene	0.18	0.10	0.012
191-24-2	Benzo(g,h,i)perylene	0.11	0.10	0.012
218-01-9	Chrysene	0.26	0.10	0.024
*53-70-3	Dibenz(a,h)anthracene	0.026J	0.10	0.012
206-44-0	Fluoranthene	0.42	0.10	0.028
*86-73-7	Fluorene	0.028J	0.10	0.025
193-39-5	Indeno(1,2,3-cd)pyrene	0.095J	0.10	0.017
91-57-6	2-Methylnaphthalene	0.10U	0.10	0.028
91-20-3	Naphthalene	0.10U	0.10	0.035
85-01-8	Phenanthrene	0.28	0.10	0.025
129-00-0	Pyrene	0.49	0.10	0.027

Surrogates:

* Nitrobenzene-d5
 2-Fluorobiphenyl
 o-Terphenyl

% Recovery

66
 68
 76

Control Limits

35-100
 45-105
 30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS201-0002**
Lab Sample ID: **1304185-01**
Matrix: **Soil**
Percent Solids: **81**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 07:50**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.7	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 09:54	DSC	1303314
Lead	66	1.0	0.066	mg/kg dry wt.	10	USEPA-6020A	04/15/13 10:49	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS201-0002**
Lab Sample ID: **1304185-01**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 07:50**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	81	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS202-0002**
 Lab Sample ID: **1304185-02**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **5**
 QC Batch: **1303302**
 Percent Solids: **79**

Work Order: **1304185**
 Description: **Laboratory Services**
 Sampled: **04/11/13 07:55**
 Sampled By: **Client**
 Received: **04/11/13 19:15**
 Prepared: **04/12/13 By: JTS**
 Analyzed: **04/12/13 By: ASC**
 Analytical Batch: **3D12034**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.26	0.11	0.029
208-96-8	Acenaphthylene	0.11U	0.11	0.026
120-12-7	Anthracene	0.68	0.11	0.025
56-55-3	Benzo(a)anthracene	0.82	0.11	0.017
50-32-8	Benzo(a)pyrene	0.64	0.11	0.014
*205-99-2	Benzo(b)fluoranthene	0.76	0.11	0.012
*207-08-9	Benzo(k)fluoranthene	0.46	0.11	0.012
191-24-2	Benzo(g,h,i)perylene	0.27	0.11	0.012
218-01-9	Chrysene	0.91	0.11	0.025
53-70-3	Dibenz(a,h)anthracene	0.11	0.11	0.012
206-44-0	Fluoranthene	1.6	0.11	0.028
86-73-7	Fluorene	0.37	0.11	0.025
193-39-5	Indeno(1,2,3-cd)pyrene	0.26	0.11	0.017
*91-57-6	2-Methylnaphthalene	0.037J	0.11	0.029
*91-20-3	Naphthalene	0.052J	0.11	0.035
85-01-8	Phenanthrene	1.9	0.11	0.026
129-00-0	Pyrene	1.6	0.11	0.027

Surrogates:
Nitrobenzene-d5
64
35-100
2-Fluorobiphenyl
70
45-105
o-Terphenyl
74
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS202-0002**
Lab Sample ID: **1304185-02**
Matrix: **Soil**
Percent Solids: **79**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 07:55**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.3	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 09:57	DSC	1303314
Lead	39	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/15/13 10:52	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS202-0002**
Lab Sample ID: **1304185-02**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 07:55**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	79	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS203-0002**
 Lab Sample ID: **1304185-03**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **5**
 QC Batch: **1303302**
 Percent Solids: **83**

Work Order: **1304185**
 Description: **Laboratory Services**
 Sampled: **04/11/13 08:00**
 Sampled By: **Client**
 Received: **04/11/13 19:15**
 Prepared: **04/12/13 By: JTS**
 Analyzed: **04/12/13 By: ASC**
 Analytical Batch: **3D12034**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.10U	0.10	0.028
*208-96-8	Acenaphthylene	0.10U	0.10	0.025
*120-12-7	Anthracene	0.093J	0.10	0.024
56-55-3	Benzo(a)anthracene	0.22	0.10	0.017
50-32-8	Benzo(a)pyrene	0.20	0.10	0.014
*205-99-2	Benzo(b)fluoranthene	0.23	0.10	0.011
*207-08-9	Benzo(k)fluoranthene	0.14	0.10	0.012
191-24-2	Benzo(g,h,i)perylene	0.097J	0.10	0.011
218-01-9	Chrysene	0.24	0.10	0.023
*53-70-3	Dibenz(a,h)anthracene	0.022J	0.10	0.011
206-44-0	Fluoranthene	0.41	0.10	0.027
86-73-7	Fluorene	0.10U	0.10	0.024
193-39-5	Indeno(1,2,3-cd)pyrene	0.081J	0.10	0.016
91-57-6	2-Methylnaphthalene	0.10U	0.10	0.027
91-20-3	Naphthalene	0.10U	0.10	0.034
85-01-8	Phenanthrene	0.21	0.10	0.025
129-00-0	Pyrene	0.44	0.10	0.026

Surrogates:
Nitrobenzene-d5
% Recovery
Control Limits
54
35-100
2-Fluorobiphenyl
68
45-105
o-Terphenyl
70
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS203-0002**
Lab Sample ID: **1304185-03**
Matrix: **Soil**
Percent Solids: **83**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:00**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.2	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 10:00	DSC	1303314
Lead	29	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/15/13 11:01	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS203-0002**
Lab Sample ID: **1304185-03**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:00**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	83	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS204-0002**
 Lab Sample ID: **1304185-04**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **5**
 QC Batch: **1303302**
 Percent Solids: **79**

Work Order: **1304185**
 Description: **Laboratory Services**
 Sampled: **04/11/13 08:05**
 Sampled By: **Client**
 Received: **04/11/13 19:15**
 Prepared: **04/12/13 By: JTS**
 Analyzed: **04/12/13 By: ASC**
 Analytical Batch: **3D12034**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
*83-32-9	Acenaphthene	0.11U	0.11	0.029
208-96-8	Acenaphthylene	0.11U	0.11	0.026
*120-12-7	Anthracene	0.078J	0.11	0.025
56-55-3	Benzo(a)anthracene	0.18	0.11	0.017
50-32-8	Benzo(a)pyrene	0.18	0.11	0.015
*205-99-2	Benzo(b)fluoranthene	0.23	0.11	0.012
*207-08-9	Benzo(k)fluoranthene	0.11	0.11	0.012
191-24-2	Benzo(g,h,i)perylene	0.11J	0.11	0.012
218-01-9	Chrysene	0.22	0.11	0.025
*53-70-3	Dibenz(a,h)anthracene	0.021J	0.11	0.012
206-44-0	Fluoranthene	0.31	0.11	0.028
*86-73-7	Fluorene	0.11U	0.11	0.025
193-39-5	Indeno(1,2,3-cd)pyrene	0.088J	0.11	0.017
91-57-6	2-Methylnaphthalene	0.11U	0.11	0.029
91-20-3	Naphthalene	0.11U	0.11	0.035
85-01-8	Phenanthrene	0.17	0.11	0.026
129-00-0	Pyrene	0.36	0.11	0.027

Surrogates:
Nitrobenzene-d5
68
Control Limits
35-100
2-Fluorobiphenyl
79
45-105
o-Terphenyl
78
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS204-0002**
Lab Sample ID: **1304185-04**
Matrix: **Soil**
Percent Solids: **79**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:05**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.2	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 10:03	DSC	1303314
Lead	40	1.0	0.066	mg/kg dry wt.	10	USEPA-6020A	04/15/13 11:04	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS204-0002**
Lab Sample ID: **1304185-04**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:05**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	79	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS205-0002**
 Lab Sample ID: **1304185-05**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **5**
 QC Batch: **1303302**
 Percent Solids: **82**

Work Order: **1304185**
 Description: **Laboratory Services**
 Sampled: **04/11/13 08:10**
 Sampled By: **Client**
 Received: **04/11/13 19:15**
 Prepared: **04/12/13 By: JTS**
 Analyzed: **04/12/13 By: ASC**
 Analytical Batch: **3D12034**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.23	0.10	0.028
208-96-8	Acenaphthylene	0.10U	0.10	0.025
120-12-7	Anthracene	0.51	0.10	0.024
56-55-3	Benzo(a)anthracene	0.89	0.10	0.017
50-32-8	Benzo(a)pyrene	0.74	0.10	0.014
*205-99-2	Benzo(b)fluoranthene	0.95	0.10	0.012
*207-08-9	Benzo(k)fluoranthene	0.50	0.10	0.012
191-24-2	Benzo(g,h,i)perylene	0.35	0.10	0.012
218-01-9	Chrysene	0.84	0.10	0.024
*53-70-3	Dibenz(a,h)anthracene	0.084J	0.10	0.012
206-44-0	Fluoranthene	1.5	0.10	0.027
*86-73-7	Fluorene	0.19	0.10	0.025
193-39-5	Indeno(1,2,3-cd)pyrene	0.32	0.10	0.016
*91-57-6	2-Methylnaphthalene	0.081J	0.10	0.028
*91-20-3	Naphthalene	0.42	0.10	0.034
85-01-8	Phenanthrene	1.5	0.10	0.025
129-00-0	Pyrene	1.8	0.10	0.026

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

68

35-100

2-Fluorobiphenyl

78

45-105

o-Terphenyl

76

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS205-0002**
Lab Sample ID: **1304185-05**
Matrix: **Soil**
Percent Solids: **82**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:10**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.1	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 10:06	DSC	1303314
Lead	21	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/15/13 11:07	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS205-0002**
Lab Sample ID: **1304185-05**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:10**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	82	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: USCG Atwater Facility
Client Sample ID: **DASS206-0002**
Lab Sample ID: **1304185-06**
Matrix: Soil
Unit: mg/kg dry
Dilution Factor: 5
QC Batch: 1303302
Percent Solids: 78

Work Order: **1304185**
Description: Laboratory Services
Sampled: 04/11/13 08:20
Sampled By: Client
Received: 04/11/13 19:15
Prepared: 04/12/13 By: JTS
Analyzed: 04/12/13 By: ASC
Analytical Batch: 3D12034

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
*83-32-9	Acenaphthene	0.035J	0.11	0.030
208-96-8	Acenaphthylene	0.11U	0.11	0.027
*120-12-7	Anthracene	0.18	0.11	0.026
56-55-3	Benzo(a)anthracene	0.29	0.11	0.018
50-32-8	Benzo(a)pyrene	0.26	0.11	0.015
*205-99-2	Benzo(b)fluoranthene	0.35	0.11	0.012
*207-08-9	Benzo(k)fluoranthene	0.21	0.11	0.013
191-24-2	Benzo(g,h,i)perylene	0.13	0.11	0.012
218-01-9	Chrysene	0.35	0.11	0.025
53-70-3	Dibenz(a,h)anthracene	0.055J	0.11	0.012
206-44-0	Fluoranthene	0.49	0.11	0.029
*86-73-7	Fluorene	0.057J	0.11	0.026
193-39-5	Indeno(1,2,3-cd)pyrene	0.10J	0.11	0.017
91-57-6	2-Methylnaphthalene	0.11U	0.11	0.029
*91-20-3	Naphthalene	0.11U	0.11	0.036
85-01-8	Phenanthrene	0.41	0.11	0.026
129-00-0	Pyrene	0.57	0.11	0.028

Surrogates:

	% Recovery	Control Limits
* Nitrobenzene-d5	62	35-100
2-Fluorobiphenyl	68	45-105
o-Terphenyl	70	30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS206-0002**
Lab Sample ID: **1304185-06**
Matrix: **Soil**
Percent Solids: **78**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:20**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	8.9	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 10:09	DSC	1303314
Lead	410	5.0	0.33	mg/kg dry wt.	50	USEPA-6020A	04/15/13 11:09	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS206-0002**
Lab Sample ID: **1304185-06**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:20**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	78	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS207-0002**
Lab Sample ID: **1304185-07**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303302**
Percent Solids: **85**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:25**
Sampled By: **Client**
Received: **04/11/13 19:15**
Prepared: **04/12/13** By: **JTS**
Analyzed: **04/12/13** By: **ASC**
Analytical Batch: **3D12034**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.016J	0.020	0.0054
208-96-8	Acenaphthylene	0.014J	0.020	0.0049
120-12-7	Anthracene	0.057	0.020	0.0047
56-55-3	Benzo(a)anthracene	0.26	0.020	0.0032
50-32-8	Benzo(a)pyrene	0.20	0.020	0.0027
*205-99-2	Benzo(b)fluoranthene	0.23	0.020	0.0022
*207-08-9	Benzo(k)fluoranthene	0.12	0.020	0.0023
191-24-2	Benzo(g,h,i)perylene	0.093	0.020	0.0022
218-01-9	Chrysene	0.22	0.020	0.0046
*53-70-3	Dibenz(a,h)anthracene	0.025	0.020	0.0022
206-44-0	Fluoranthene	0.31	0.020	0.0052
86-73-7	Fluorene	0.020	0.020	0.0047
193-39-5	Indeno(1,2,3-cd)pyrene	0.089	0.020	0.0031
*91-57-6	2-Methylnaphthalene	0.0067J	0.020	0.0053
*91-20-3	Naphthalene	0.020U	0.020	0.0066
85-01-8	Phenanthrene	0.20	0.020	0.0048
129-00-0	Pyrene	0.41	0.020	0.0050

Surrogates:

% Recovery

Control Limits

Nitrobenzene-d5

79

35-100

2-Fluorobiphenyl

84

45-105

o-Terphenyl

77

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS207-0002**
Lab Sample ID: **1304185-07**
Matrix: **Soil**
Percent Solids: **85**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:25**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.1	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 10:24	DSC	1303314
Lead	99	2.5	0.16	mg/kg dry wt.	25	USEPA-6020A	04/15/13 11:12	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS207-0002**
Lab Sample ID: **1304185-07**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:25**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	85	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB224-0507**
Lab Sample ID: **1304185-08**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303302**
Percent Solids: **85**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:50**
Sampled By: **Client**
Received: **04/11/13 19:15**
Prepared: **04/12/13 By: JTS**
Analyzed: **04/12/13 By: ASC**
Analytical Batch: **3D12034**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.015J	0.020	0.0055
208-96-8	Acenaphthylene	0.020U	0.020	0.0049
120-12-7	Anthracene	0.014J	0.020	0.0047
56-55-3	Benzo(a)anthracene	0.041	0.020	0.0033
50-32-8	Benzo(a)pyrene	0.033	0.020	0.0027
*205-99-2	Benzo(b)fluoranthene	0.039	0.020	0.0023
*207-08-9	Benzo(k)fluoranthene	0.019J	0.020	0.0023
191-24-2	Benzo(g,h,i)perylene	0.020	0.020	0.0022
218-01-9	Chrysene	0.039	0.020	0.0046
*53-70-3	Dibenz(a,h)anthracene	0.0037J	0.020	0.0023
206-44-0	Fluoranthene	0.067	0.020	0.0053
86-73-7	Fluorene	0.0069J	0.020	0.0048
*193-39-5	Indeno(1,2,3-cd)pyrene	0.013J	0.020	0.0032
*91-57-6	2-Methylnaphthalene	0.020U	0.020	0.0054
*91-20-3	Naphthalene	0.020U	0.020	0.0066
85-01-8	Phenanthrene	0.058	0.020	0.0048
129-00-0	Pyrene	0.081	0.020	0.0051

Surrogates:

Nitrobenzene-d5

77

35-100

2-Fluorobiphenyl

78

45-105

o-Terphenyl

73

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB224-0507**
Lab Sample ID: **1304185-08**
Matrix: **Soil**
Percent Solids: **85**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:50**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.1	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 10:12	DSC	1303314
Lead	63	1.0	0.066	mg/kg dry wt.	10	USEPA-6020A	04/15/13 11:15	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB224-0507**
Lab Sample ID: **1304185-08**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:50**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	85	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB225-0507**
Lab Sample ID: **1304185-09**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303302**
Percent Solids: **79**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:55**
Sampled By: **Client**
Received: **04/11/13 19:15**
Prepared: **04/12/13** By: **JTS**
Analyzed: **04/12/13** By: **ASC**
Analytical Batch: **3D12034**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.19	0.021	0.0059
208-96-8	Acenaphthylene	0.0061J	0.021	0.0053
120-12-7	Anthracene	0.037	0.021	0.0051
56-55-3	Benzo(a)anthracene	0.067	0.021	0.0035
50-32-8	Benzo(a)pyrene	0.066	0.021	0.0029
*205-99-2	Benzo(b)fluoranthene	0.071	0.021	0.0024
*207-08-9	Benzo(k)fluoranthene	0.037	0.021	0.0025
191-24-2	Benzo(g,h,i)perylene	0.034	0.021	0.0024
218-01-9	Chrysene	0.063	0.021	0.0049
53-70-3	Dibenz(a,h)anthracene	0.0070J	0.021	0.0024
206-44-0	Fluoranthene	0.13	0.021	0.0057
86-73-7	Fluorene	0.068	0.021	0.0051
193-39-5	Indeno(1,2,3-cd)pyrene	0.032	0.021	0.0034
*91-57-6	2-Methylnaphthalene	0.021U	0.021	0.0058
91-20-3	Naphthalene	0.018J	0.021	0.0071
85-01-8	Phenanthrene	0.090	0.021	0.0052
129-00-0	Pyrene	0.15	0.021	0.0055

Surrogates:

Nitrobenzene-d5

75

35-100

2-Fluorobiphenyl

76

45-105

o-Terphenyl

74

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB225-0507**
Lab Sample ID: **1304185-09**
Matrix: **Soil**
Percent Solids: **79**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:55**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	2.6	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 10:15	DSC	1303314
Lead	31	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/15/13 11:18	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB225-0507**
Lab Sample ID: **1304185-09**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 08:55**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	79	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB226-0507**
 Lab Sample ID: **1304185-10**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **5**
 QC Batch: **1303302**
 Percent Solids: **76**

Work Order: **1304185**
 Description: **Laboratory Services**
 Sampled: **04/11/13 09:00**
 Sampled By: **Client**
 Received: **04/11/13 19:15**
 Prepared: **04/12/13 By: JTS**
 Analyzed: **04/12/13 By: DWJ**
 Analytical Batch: **3D15022**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.15	0.11	0.030
208-96-8	Acenaphthylene	0.11U	0.11	0.027
120-12-7	Anthracene	0.32	0.11	0.026
56-55-3	Benzo(a)anthracene	0.41	0.11	0.018
50-32-8	Benzo(a)pyrene	0.30	0.11	0.015
*205-99-2	Benzo(b)fluoranthene	0.34	0.11	0.013
*207-08-9	Benzo(k)fluoranthene	0.17	0.11	0.013
191-24-2	Benzo(g,h,i)perylene	0.16	0.11	0.012
218-01-9	Chrysene	0.35	0.11	0.026
*53-70-3	Dibenz(a,h)anthracene	0.038J	0.11	0.013
206-44-0	Fluoranthene	0.98	0.11	0.029
86-73-7	Fluorene	0.11J	0.11	0.026
193-39-5	Indeno(1,2,3-cd)pyrene	0.14	0.11	0.018
*91-57-6	2-Methylnaphthalene	0.11U	0.11	0.030
*91-20-3	Naphthalene	0.040J	0.11	0.037
85-01-8	Phenanthrene	0.50	0.11	0.027
129-00-0	Pyrene	0.97	0.11	0.028

Surrogates:

* Nitrobenzene-d5
 2-Fluorobiphenyl
 o-Terphenyl

% Recovery

66
 75
 75

Control Limits

35-100
 45-105
 30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB226-0507**
Lab Sample ID: **1304185-10**
Matrix: **Soil**
Percent Solids: **76**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 09:00**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	4.2	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 10:29	DSC	1303314
Lead	35	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/15/13 11:21	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB226-0507**
Lab Sample ID: **1304185-10**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 09:00**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	76	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB227-0507**
 Lab Sample ID: **1304185-11**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **1**
 QC Batch: **1303302**
 Percent Solids: **84**

Work Order: **1304185**
 Description: **Laboratory Services**
 Sampled: **04/11/13 09:05**
 Sampled By: **Client**
 Received: **04/11/13 19:15**
 Prepared: **04/12/13 By: JTS**
 Analyzed: **04/12/13 By: ASC**
 Analytical Batch: **3D12034**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.034	0.020	0.0055
208-96-8	Acenaphthylene	0.012J	0.020	0.0050
*120-12-7	Anthracene	0.064	0.020	0.0048
*56-55-3	Benzo(a)anthracene	0.21	0.020	0.0033
50-32-8	Benzo(a)pyrene	0.18	0.020	0.0027
*205-99-2	Benzo(b)fluoranthene	0.22	0.020	0.0023
*207-08-9	Benzo(k)fluoranthene	0.12	0.020	0.0023
191-24-2	Benzo(g,h,i)perylene	0.084	0.020	0.0022
*218-01-9	Chrysene	0.19	0.020	0.0046
*53-70-3	Dibenz(a,h)anthracene	0.019J	0.020	0.0023
*206-44-0	Fluoranthene	0.33	0.020	0.0053
86-73-7	Fluorene	0.051	0.020	0.0048
193-39-5	Indeno(1,2,3-cd)pyrene	0.082	0.020	0.0032
91-57-6	2-Methylnaphthalene	0.013J	0.020	0.0054
91-20-3	Naphthalene	0.016J	0.020	0.0067
*85-01-8	Phenanthrene	0.23	0.020	0.0049
*129-00-0	Pyrene	0.40	0.020	0.0051

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

78

35-100

2-Fluorobiphenyl

84

45-105

o-Terphenyl

82

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB227-0507**
Lab Sample ID: **1304185-11**
Matrix: **Soil**
Percent Solids: **84**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 09:05**
Sampled By: **Client**
Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.9	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 10:32	DSC	1303314
*Lead	72	1.0	0.066	mg/kg dry wt.	10	USEPA-6020A	04/15/13 11:24	DSC	1303314

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB227-0507**
Lab Sample ID: **1304185-11**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 09:05**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	84	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB-FD-03**
 Lab Sample ID: **1304185-12**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **5**
 QC Batch: **1303302**
 Percent Solids: **83**

Work Order: **1304185**
 Description: **Laboratory Services**
 Sampled: **04/11/13 00:00**
 Sampled By: **Client**
 Received: **04/11/13 19:15**
 Prepared: **04/12/13 By: JTS**
 Analyzed: **04/12/13 By: DWJ**
 Analytical Batch: **3D15022**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.064J	0.10	0.028
208-96-8	Acenaphthylene	0.046J	0.10	0.025
120-12-7	Anthracene	0.47	0.10	0.024
56-55-3	Benzo(a)anthracene	0.92	0.10	0.017
50-32-8	Benzo(a)pyrene	0.63	0.10	0.014
*205-99-2	Benzo(b)fluoranthene	0.81	0.10	0.011
*207-08-9	Benzo(k)fluoranthene	0.40	0.10	0.012
191-24-2	Benzo(g,h,i)perylene	0.30	0.10	0.011
218-01-9	Chrysene	0.79	0.10	0.023
53-70-3	Dibenz(a,h)anthracene	0.12	0.10	0.011
206-44-0	Fluoranthene	1.7	0.10	0.027
86-73-7	Fluorene	0.12	0.10	0.024
193-39-5	Indeno(1,2,3-cd)pyrene	0.29	0.10	0.016
*91-57-6	2-Methylnaphthalene	0.10U	0.10	0.027
*91-20-3	Naphthalene	0.10U	0.10	0.034
85-01-8	Phenanthrene	1.5	0.10	0.025
129-00-0	Pyrene	1.9	0.10	0.026

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5
68
35-100
2-Fluorobiphenyl
75
45-105
o-Terphenyl
73
30-125

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB-FD-03**
 Lab Sample ID: **1304185-12**
 Matrix: **Soil**
 Percent Solids: **83**

Work Order: **1304185**
 Description: **Laboratory Services**
 Sampled: **04/11/13 00:00**
 Sampled By: **Client**
 Received: **04/11/13 19:15**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.3	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/15/13 10:46	DSC	1303314
Lead	29	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/15/13 11:50	DSC	1303314



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB-FD-03**
Lab Sample ID: **1304185-12**
Matrix: **Soil**

Work Order: **1304185**
Description: **Laboratory Services**
Sampled: **04/11/13 00:00**
Sampled By: **Client**
Received: **04/11/13 19:15**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	83	0.1	0.1	%	1	USEPA-3550C	04/12/13 13:30	BAR	1303324

STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	1304185-11	DASB227-0507	Phenanthrene
	1304185-11	DASB227-0507	Pyrene

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	1304185-11	DASB227-0507	Anthracene
	1304185-11	DASB227-0507	Benzo(a)anthracene
	1304185-11	DASB227-0507	Benzo(b)fluoranthene
	1304185-11	DASB227-0507	Chrysene
	1304185-11	DASB227-0507	Fluoranthene

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8270C

Sample/Analyte:	1303302-MS1	Benzo(b)fluoranthene
	1303302-MS1	Benzo(k)fluoranthene
	1303302-MS1	Dibenz(a,h)anthracene
	1303302-MS1	Indeno(1,2,3-cd)pyrene
	1303302-MSD1	Dibenz(a,h)anthracene
	1304185-01	DASS201-0002
	1304185-01	DASS201-0002
	1304185-01	DASS201-0002
	1304185-01	DASS201-0002
	1304185-01	DASS201-0002
	1304185-01	DASS201-0002
	1304185-01	DASS201-0002
	1304185-02	DASS202-0002
	1304185-02	DASS202-0002
	1304185-02	DASS202-0002
	1304185-02	DASS202-0002
	1304185-02	DASS202-0002
	1304185-03	DASS203-0002
	1304185-03	DASS203-0002
	1304185-03	DASS203-0002
	1304185-03	DASS203-0002
	1304185-03	DASS203-0002
	1304185-04	DASS204-0002
	1304185-04	DASS204-0002
	1304185-04	DASS204-0002
	1304185-04	DASS204-0002
	1304185-04	DASS204-0002
	1304185-05	DASS205-0002
	1304185-05	DASS205-0002
	1304185-05	DASS205-0002

STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8270C

Sample/Analyte:	1304185-05	DASS205-0002	Dibenz(a,h)anthracene
	1304185-05	DASS205-0002	Fluorene
	1304185-05	DASS205-0002	Naphthalene
	1304185-06	DASS206-0002	Acenaphthene
	1304185-06	DASS206-0002	Anthracene
	1304185-06	DASS206-0002	Benzo(b)fluoranthene
	1304185-06	DASS206-0002	Benzo(k)fluoranthene
	1304185-06	DASS206-0002	Fluorene
	1304185-06	DASS206-0002	Naphthalene
	1304185-06	DASS206-0002	Nitrobenzene-d5
	1304185-07	DASS207-0002	2-Methylnaphthalene
	1304185-07	DASS207-0002	Benzo(b)fluoranthene
	1304185-07	DASS207-0002	Benzo(k)fluoranthene
	1304185-07	DASS207-0002	Dibenz(a,h)anthracene
	1304185-07	DASS207-0002	Naphthalene
	1304185-08	DASB224-0507	2-Methylnaphthalene
	1304185-08	DASB224-0507	Benzo(b)fluoranthene
	1304185-08	DASB224-0507	Benzo(k)fluoranthene
	1304185-08	DASB224-0507	Dibenz(a,h)anthracene
	1304185-08	DASB224-0507	Indeno(1,2,3-cd)pyrene
	1304185-08	DASB224-0507	Naphthalene
	1304185-09	DASB225-0507	2-Methylnaphthalene
	1304185-09	DASB225-0507	Benzo(b)fluoranthene
	1304185-09	DASB225-0507	Benzo(k)fluoranthene
	1304185-10	DASB226-0507	2-Methylnaphthalene
	1304185-10	DASB226-0507	Benzo(b)fluoranthene
	1304185-10	DASB226-0507	Benzo(k)fluoranthene
	1304185-10	DASB226-0507	Dibenz(a,h)anthracene
	1304185-10	DASB226-0507	Naphthalene
	1304185-10	DASB226-0507	Nitrobenzene-d5
	1304185-11	DASB227-0507	Benzo(b)fluoranthene
	1304185-11	DASB227-0507	Benzo(k)fluoranthene
	1304185-11	DASB227-0507	Dibenz(a,h)anthracene
	1304185-12	DASB-FD-03	2-Methylnaphthalene
	1304185-12	DASB-FD-03	Benzo(b)fluoranthene
	1304185-12	DASB-FD-03	Benzo(k)fluoranthene
	1304185-12	DASB-FD-03	Naphthalene

Qualification: The RL for this analysis has been elevated due to sample matrix interference.

Analysis: USEPA-8270C

Sample:	1304185-01	DASS201-0002
	1304185-03	DASS203-0002
	1304185-04	DASS204-0002
	1304185-06	DASS206-0002
	1304185-10	DASB226-0507



STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C (Continued)



STATEMENT OF DATA QUALIFICATIONS

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was greater than or equal to 4 times the spiked amount; matrix QC results are not available.

Analysis: USEPA-6020A

Sample/Analyte: 1304185-11

DASB227-0507

Lead



TETRA TECH NUS, INC.

(3-12)

CHART 9

CHAIN OF CUSTODY

NUMBER NO 2285

PAGE 1 OF 1

PROJECT NO: 112G02425		FACILITY: USCG - Alton		PROJECT MANAGER Joe Logan		PHONE NUMBER 412 921 7231		LABORATORY NAME AND CONTACT: Trimatrix / Gary Wood					
SAMPLERS (SIGNATURE) <i>[Signature]</i>		FIELD OPERATIONS LEADER Jim Gerd		CARRIER/WAYBILL NUMBER Trimatrix Pick up		PHONE NUMBER 412 443 0249		ADDRESS 5560 Corp. Exchange St Grand Rapids, MI					
STANDARD TAT <input type="checkbox"/> RUSH TAT <input type="checkbox"/> <input checked="" type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day				CONTAINER TYPE PLASTIC (P) or GLASS (G) G		PRESERVATIVE USED							
DATE 2013	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SQ, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS Pb, As, PAH, 40c			COMMENTS	
4/11	0750	DASS201-0002	201	0	2	SO	G	1				1304185-01	
	0755	DASS202-0002	202					1				-02	
	0800	DASS203-0002	203					1				-03	
	0805	DASS204-0002	204					1				-04	
	0810	DASS205-0002	205					1				-05	
	0820	DASS206-0002	206					1				-06	
	0825	DASS207-0002	207	↓	↓			1				-07	
	0850	DASB224-0507	224	5	7			1				-0507 -08	
	0855	DASB225-0507	225	↓	↓			1				-0507 -09	
	0900	DASB226-0507	226	↓	↓			1				-0507 -10	
	0905	DASB227-0507	227	↓	↓	↓	↓	2				-0507 -11	
	0000	DASB-FD-03	QC	-	-	QC	G	1				-12	
1. RELINQUISHED BY <i>[Signature]</i>				DATE 4-11-13		TIME 1320		1. RECEIVED BY <i>[Signature]</i>				DATE 4/11/13	TIME 1320
2. RELINQUISHED BY <i>[Signature]</i>				DATE 4/11/13		TIME 1415		2. RECEIVED BY <i>[Signature]</i>				DATE 4/11/13	TIME 1415
3. RELINQUISHED BY <i>[Signature]</i>				DATE 4/11/13		TIME 1915		3. RECEIVED BY <i>[Signature]</i>				DATE 4/11/13	TIME 1915
COMMENTS													

DISTRIBUTION:

WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)

4/02R

SAMPLE RECEIVING / LOG-IN CHECKLIST



Client: <u>LETRA TECH</u>	Work Order #: <u>1304185</u>
Receipt Record Page/Line #: <u>3-13</u>	Now / Add To Project Chemist: <u>1312</u> Sample #: <u> </u>

Recorded by (Initials/Date): <u>SN 4-11-13</u>	<input checked="" type="checkbox"/> Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other: <u> </u>	Qty Received: <u>1</u>	<input checked="" type="checkbox"/> IR Gun (#202) <input type="checkbox"/> Digital Thermometer (#54) <input type="checkbox"/> Other (# <u> </u>)	Thermometer Used: <u> </u>	See Additional Cooler Information Form: <u> </u>
---	---	---------------------------	--	-----------------------------------	---

Cooler #: <u>IND 702</u> Time: <u>1957</u>	Cooler #: <u> </u> Time: <u> </u>												
Custody Seals: <input checked="" type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact													
Coolant Location: <u>Dispersed / Top / Middle / Bottom</u>													
Coolant/Temperature Taken Via: <input checked="" type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers													
Alternate Temperature Taken Via: <input checked="" type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container													
Recorded °C: <u>5.5</u>	Correction Factor °C: <u>0</u>												
Actual °C: <u>5.5</u>													
Temp Blank: <u> </u>													
TB location: Representative / Not Representative													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>1</th> <th>2</th> <th>3</th> </tr> <tr> <td><u>5.4</u></td> <td><u>0</u></td> <td><u>5.4</u></td> </tr> <tr> <td><u>5.3</u></td> <td><u>0</u></td> <td><u>5.3</u></td> </tr> <tr> <td colspan="3" style="text-align: center;">Average °C: <u>5.0</u></td> </tr> </table>		1	2	3	<u>5.4</u>	<u>0</u>	<u>5.4</u>	<u>5.3</u>	<u>0</u>	<u>5.3</u>	Average °C: <u>5.0</u>		
1	2	3											
<u>5.4</u>	<u>0</u>	<u>5.4</u>											
<u>5.3</u>	<u>0</u>	<u>5.3</u>											
Average °C: <u>5.0</u>													
<input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?													

Cooler #: <u> </u> Time: <u> </u>	Cooler #: <u> </u> Time: <u> </u>												
Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact													
Coolant Location: <u>Dispersed / Top / Middle / Bottom</u>													
Coolant/Temperature Taken Via: <input type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers													
Alternate Temperature Taken Via: <input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container													
Recorded °C: <u> </u>	Correction Factor °C: <u> </u>												
Actual °C: <u> </u>													
Temp Blank: <u> </u>													
TB location: Representative / Not Representative													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>1</th> <th>2</th> <th>3</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td colspan="3" style="text-align: center;">Average °C: <u> </u></td> </tr> </table>		1	2	3							Average °C: <u> </u>		
1	2	3											
Average °C: <u> </u>													
<input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?													

Cooler #: <u> </u> Time: <u> </u>	Cooler #: <u> </u> Time: <u> </u>												
Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact													
Coolant Location: <u>Dispersed / Top / Middle / Bottom</u>													
Coolant/Temperature Taken Via: <input type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers													
Alternate Temperature Taken Via: <input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container													
Recorded °C: <u> </u>	Correction Factor °C: <u> </u>												
Actual °C: <u> </u>													
Temp Blank: <u> </u>													
TB location: Representative / Not Representative													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>1</th> <th>2</th> <th>3</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td colspan="3" style="text-align: center;">Average °C: <u> </u></td> </tr> </table>		1	2	3							Average °C: <u> </u>		
1	2	3											
Average °C: <u> </u>													
<input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?													

Cooler #: <u> </u> Time: <u> </u>	Cooler #: <u> </u> Time: <u> </u>												
Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact													
Coolant Location: <u>Dispersed / Top / Middle / Bottom</u>													
Coolant/Temperature Taken Via: <input type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers													
Alternate Temperature Taken Via: <input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container													
Recorded °C: <u> </u>	Correction Factor °C: <u> </u>												
Actual °C: <u> </u>													
Temp Blank: <u> </u>													
TB location: Representative / Not Representative													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>1</th> <th>2</th> <th>3</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td colspan="3" style="text-align: center;">Average °C: <u> </u></td> </tr> </table>		1	2	3							Average °C: <u> </u>		
1	2	3											
Average °C: <u> </u>													
<input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?													

If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Chain of Custody record(s)? If No, Initiated By: <u> </u>
Received for Lab Signed/Date/Time? <u> </u>	
Shipping document? <input checked="" type="checkbox"/>	
Other: <u> </u>	

COC Information	
TriMatrix COC: <input checked="" type="checkbox"/>	Other: <u>LETRA TECH</u>
COC ID Numbers: <u># 2285</u>	

Check COC for Accuracy	
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Analysis Requested? <input checked="" type="checkbox"/>
Sample ID matches COC? <input checked="" type="checkbox"/>	
Sample Date and Time matches COC? <input checked="" type="checkbox"/>	
Container type completed on COC? <input checked="" type="checkbox"/>	
All container types indicated are received? <input checked="" type="checkbox"/>	

Sample Condition Summary	
N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	Broken containers/ids? <input checked="" type="checkbox"/>
Missing or incomplete labels? <input checked="" type="checkbox"/>	
Illegible information on labels? <input checked="" type="checkbox"/>	
Low volume received? <input checked="" type="checkbox"/>	
Inappropriate or non-TriMatrix containers received? <input checked="" type="checkbox"/>	
VOC vials / TOX containers have headspace? <input checked="" type="checkbox"/>	
Extra sample locations / containers not listed on COC? <input checked="" type="checkbox"/>	

Check Sample Preservation	
N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	Average sample temperature ≤ 6° C? <input checked="" type="checkbox"/>
Was thermal preservation required? <input checked="" type="checkbox"/>	
If "No", Project Chemist Approval Initials: <u> </u>	
If "Yes" Completed Non Con Cooler - Cont Inventory Form? <input checked="" type="checkbox"/>	
Completed Sample Preservation Verification Form? <input checked="" type="checkbox"/>	
Samples chemically preserved correctly? <input checked="" type="checkbox"/>	
If "No", added orange tag? <input checked="" type="checkbox"/>	
Received pre-preserved VOC soils? <input checked="" type="checkbox"/>	
MeOH <input type="checkbox"/> Na ₂ SO ₄ <input type="checkbox"/>	

Check for Short Hold-Time Prep/Analyses	
Bacteriological <input type="checkbox"/>	Air Bags <input type="checkbox"/>
EnCones / Methanol Pre-Preserved <input type="checkbox"/>	Formaldehyde/Aldehyde <input type="checkbox"/>
Green-tagged containers <input type="checkbox"/>	Yellow/White-tagged 1L ambers (SV Prep-Lab) <input type="checkbox"/>

Notes	
<u>Flush</u>	
<input type="checkbox"/> Trip Blank received <input type="checkbox"/> Trip Blank not listed on COC	
Cooler Received (Date/Time): <u>SN 4/11/13</u>	Paperwork Delivered (Date/Time): <u>4/11/13</u>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	



April 16, 2013

TETRA TECH NUS - Pittsburgh
Attn: Mr. Joe Logan
661 Anderson Drive, Foster Plaza 7
Pittsburgh, PA 15220

Project: USCG Atwater Facility

Dear Mr. Joe Logan,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

Work Order	Received	Description
1304208	04/12/2013	Laboratory Services
1304212	04/13/2013	Laboratory Services

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

ACLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/12-056-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003059); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#83658); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/48855); North Carolina DNRE (#659); Texas CEQ (#T104704495-13-3); Virginia DCLS (#460153/1622); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-12-00236).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications section of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Gary L. Wood
Project Chemist

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB228-0305**
 Lab Sample ID: **1304208-01**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **1**
 QC Batch: **1303365**
 Percent Solids: **86**

Work Order: **1304208**
 Description: **Laboratory Services**
 Sampled: **04/11/13 15:10**
 Sampled By: **Client**
 Received: **04/12/13 17:30**
 Prepared: **04/15/13 By: ALK**
 Analyzed: **04/15/13 By: ASC**
 Analytical Batch: **3D15025**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.019U	0.019	0.0054
208-96-8	Acenaphthylene	0.019U	0.019	0.0048
120-12-7	Anthracene	0.019U	0.019	0.0046
56-55-3	Benzo(a)anthracene	0.0036J	0.019	0.0032
*50-32-8	Benzo(a)pyrene	0.019U	0.019	0.0027
*205-99-2	Benzo(b)fluoranthene	0.0032J	0.019	0.0022
*207-08-9	Benzo(k)fluoranthene	0.019U	0.019	0.0023
191-24-2	Benzo(g,h,i)perylene	0.0036J	0.019	0.0022
*218-01-9	Chrysene	0.0052J	0.019	0.0045
53-70-3	Dibenz(a,h)anthracene	0.019U	0.019	0.0022
206-44-0	Fluoranthene	0.0068J	0.019	0.0052
86-73-7	Fluorene	0.019U	0.019	0.0047
193-39-5	Indeno(1,2,3-cd)pyrene	0.019U	0.019	0.0031
91-57-6	2-Methylnaphthalene	0.019U	0.019	0.0053
*91-20-3	Naphthalene	0.019U	0.019	0.0065
85-01-8	Phenanthrene	0.0052J	0.019	0.0047
129-00-0	Pyrene	0.0080J	0.019	0.0050

Surrogates:
Nitrobenzene-d5
% Recovery
 70

Control Limits

35-100

2-Fluorobiphenyl

72

45-105

o-Terphenyl

74

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB228-0305**
Lab Sample ID: **1304208-01**
Matrix: **Soil**
Percent Solids: **86**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 15:10**
Sampled By: **Client**
Received: **04/12/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.1	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:15	MSM	1303384
Lead	6.9	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:15	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB228-0305**
Lab Sample ID: **1304208-01**
Matrix: **Soil**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 15:10**
Sampled By: **Client**
Received: **04/12/13 17:30**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	86	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB229-0305**
 Lab Sample ID: **1304208-02**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **1**
 QC Batch: **1303365**
 Percent Solids: **90**

Work Order: **1304208**
 Description: **Laboratory Services**
 Sampled: **04/11/13 15:15**
 Sampled By: **Client**
 Received: **04/12/13 17:30**
 Prepared: **04/15/13 By: ALK**
 Analyzed: **04/15/13 By: ASC**
 Analytical Batch: **3D15025**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.018U	0.018	0.0051
208-96-8	Acenaphthylene	0.018U	0.018	0.0046
120-12-7	Anthracene	0.018U	0.018	0.0044
56-55-3	Benzo(a)anthracene	0.0038J	0.018	0.0030
50-32-8	Benzo(a)pyrene	0.0034J	0.018	0.0025
*205-99-2	Benzo(b)fluoranthene	0.0038J	0.018	0.0021
*207-08-9	Benzo(k)fluoranthene	0.018U	0.018	0.0022
191-24-2	Benzo(g,h,i)perylene	0.0042J	0.018	0.0021
218-01-9	Chrysene	0.018U	0.018	0.0043
53-70-3	Dibenz(a,h)anthracene	0.018U	0.018	0.0021
206-44-0	Fluoranthene	0.0061J	0.018	0.0050
86-73-7	Fluorene	0.018U	0.018	0.0045
193-39-5	Indeno(1,2,3-cd)pyrene	0.018U	0.018	0.0030
91-57-6	2-Methylnaphthalene	0.018U	0.018	0.0051
91-20-3	Naphthalene	0.018U	0.018	0.0062
85-01-8	Phenanthrene	0.0053J	0.018	0.0045
129-00-0	Pyrene	0.0080J	0.018	0.0048

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

76

35-100

2-Fluorobiphenyl

80

45-105

o-Terphenyl

77

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB229-0305**
Lab Sample ID: **1304208-02**
Matrix: **Soil**
Percent Solids: **90**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 15:15**
Sampled By: **Client**
Received: **04/12/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.1	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:16	MSM	1303384
Lead	6.5	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:16	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB229-0305**
Lab Sample ID: **1304208-02**
Matrix: **Soil**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 15:15**
Sampled By: **Client**
Received: **04/12/13 17:30**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	90	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB230-0305**
Lab Sample ID: **1304208-03**
Matrix: **Soil**
Percent Solids: **86**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 15:20**
Sampled By: **Client**
Received: **04/12/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	4.3	0.094	0.015	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:17	MSM	1303384
Lead	6.9	0.094	0.0062	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:17	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB230-0305**
Lab Sample ID: **1304208-03**
Matrix: **Soil**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 15:20**
Sampled By: **Client**
Received: **04/12/13 17:30**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	86	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB231-0305**
 Lab Sample ID: **1304208-04**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **1**
 QC Batch: **1303365**
 Percent Solids: **86**

Work Order: **1304208**
 Description: **Laboratory Services**
 Sampled: **04/11/13 15:25**
 Sampled By: **Client**
 Received: **04/12/13 17:30**
 Prepared: **04/15/13** By: **ALK**
 Analyzed: **04/15/13** By: **ASC**
 Analytical Batch: **3D15025**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.019U	0.019	0.0054
208-96-8	Acenaphthylene	0.019U	0.019	0.0049
120-12-7	Anthracene	0.019U	0.019	0.0047
56-55-3	Benzo(a)anthracene	0.019U	0.019	0.0032
50-32-8	Benzo(a)pyrene	0.019U	0.019	0.0027
*205-99-2	Benzo(b)fluoranthene	0.0023J	0.019	0.0022
*207-08-9	Benzo(k)fluoranthene	0.019U	0.019	0.0023
191-24-2	Benzo(g,h,i)perylene	0.0034J	0.019	0.0022
218-01-9	Chrysene	0.0045J	0.019	0.0045
53-70-3	Dibenz(a,h)anthracene	0.019U	0.019	0.0022
206-44-0	Fluoranthene	0.019U	0.019	0.0052
86-73-7	Fluorene	0.019U	0.019	0.0047
193-39-5	Indeno(1,2,3-cd)pyrene	0.019U	0.019	0.0031
91-57-6	2-Methylnaphthalene	0.019U	0.019	0.0053
91-20-3	Naphthalene	0.019U	0.019	0.0065
85-01-8	Phenanthrene	0.019U	0.019	0.0048
129-00-0	Pyrene	0.0057J	0.019	0.0050

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5
73
35-100
2-Fluorobiphenyl
77
45-105
o-Terphenyl
73
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB231-0305**
Lab Sample ID: **1304208-04**
Matrix: **Soil**
Percent Solids: **86**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 15:25**
Sampled By: **Client**
Received: **04/12/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.1	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:18	MSM	1303384
Lead	7.5	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:18	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB231-0305**
Lab Sample ID: **1304208-04**
Matrix: **Soil**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 15:25**
Sampled By: **Client**
Received: **04/12/13 17:30**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	86	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASBFD-04**
 Lab Sample ID: **1304208-05**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **1**
 QC Batch: **1303365**
 Percent Solids: **88**

Work Order: **1304208**
 Description: **Laboratory Services**
 Sampled: **04/11/13 00:00**
 Sampled By: **Client**
 Received: **04/12/13 17:30**
 Prepared: **04/15/13** By: **ALK**
 Analyzed: **04/15/13** By: **ASC**
 Analytical Batch: **3D15025**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.019U	0.019	0.0053
208-96-8	Acenaphthylene	0.019U	0.019	0.0047
120-12-7	Anthracene	0.019U	0.019	0.0046
*56-55-3	Benzo(a)anthracene	0.019U	0.019	0.0031
50-32-8	Benzo(a)pyrene	0.019U	0.019	0.0026
*205-99-2	Benzo(b)fluoranthene	0.019U	0.019	0.0022
*207-08-9	Benzo(k)fluoranthene	0.019U	0.019	0.0022
191-24-2	Benzo(g,h,i)perylene	0.0044J	0.019	0.0021
*218-01-9	Chrysene	0.019U	0.019	0.0044
53-70-3	Dibenz(a,h)anthracene	0.019U	0.019	0.0022
206-44-0	Fluoranthene	0.019U	0.019	0.0051
86-73-7	Fluorene	0.019U	0.019	0.0046
193-39-5	Indeno(1,2,3-cd)pyrene	0.019U	0.019	0.0030
91-57-6	2-Methylnaphthalene	0.019U	0.019	0.0052
91-20-3	Naphthalene	0.019U	0.019	0.0064
85-01-8	Phenanthrene	0.019U	0.019	0.0046
129-00-0	Pyrene	0.019U	0.019	0.0049

Surrogates:
Nitrobenzene-d5
% Recovery
Control Limits
75 35-100
2-Fluorobiphenyl
76
45-105
o-Terphenyl
78
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASBFD-04**
Lab Sample ID: **1304208-05**
Matrix: **Soil**
Percent Solids: **88**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 00:00**
Sampled By: **Client**
Received: **04/12/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.6	0.094	0.015	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:19	MSM	1303384
Lead	7.1	0.094	0.0062	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:19	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASBFD-04**
Lab Sample ID: **1304208-05**
Matrix: **Soil**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 00:00**
Sampled By: **Client**
Received: **04/12/13 17:30**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	88	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASBFD-05**
 Lab Sample ID: **1304208-06**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **1**
 QC Batch: **1303365**
 Percent Solids: **87**

Work Order: **1304208**
 Description: **Laboratory Services**
 Sampled: **04/11/13 00:00**
 Sampled By: **Client**
 Received: **04/12/13 17:30**
 Prepared: **04/15/13** By: **ALK**
 Analyzed: **04/15/13** By: **ASC**
 Analytical Batch: **3D15025**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.019U	0.019	0.0053
208-96-8	Acenaphthylene	0.019U	0.019	0.0048
120-12-7	Anthracene	0.019U	0.019	0.0046
56-55-3	Benzo(a)anthracene	0.0040J	0.019	0.0032
50-32-8	Benzo(a)pyrene	0.0028J	0.019	0.0027
*205-99-2	Benzo(b)fluoranthene	0.0024J	0.019	0.0022
*207-08-9	Benzo(k)fluoranthene	0.0028J	0.019	0.0022
191-24-2	Benzo(g,h,i)perylene	0.0044J	0.019	0.0022
218-01-9	Chrysene	0.0052J	0.019	0.0045
53-70-3	Dibenz(a,h)anthracene	0.019U	0.019	0.0022
206-44-0	Fluoranthene	0.0060J	0.019	0.0052
86-73-7	Fluorene	0.019U	0.019	0.0046
*193-39-5	Indeno(1,2,3-cd)pyrene	0.019U	0.019	0.0031
91-57-6	2-Methylnaphthalene	0.019U	0.019	0.0053
91-20-3	Naphthalene	0.019U	0.019	0.0065
85-01-8	Phenanthrene	0.019U	0.019	0.0047
129-00-0	Pyrene	0.0084J	0.019	0.0050

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5
71
35-100
2-Fluorobiphenyl
75
45-105
o-Terphenyl
73
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASBFD-05**
Lab Sample ID: **1304208-06**
Matrix: **Soil**
Percent Solids: **87**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 00:00**
Sampled By: **Client**
Received: **04/12/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.0	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:20	MSM	1303384
Lead	9.2	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:20	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASBFD-05**
Lab Sample ID: **1304208-06**
Matrix: **Soil**

Work Order: **1304208**
Description: **Laboratory Services**
Sampled: **04/11/13 00:00**
Sampled By: **Client**
Received: **04/12/13 17:30**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	87	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS208-0002**
Lab Sample ID: **1304212-01**
Matrix: **Soil**
Percent Solids: **87**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:10**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	7.7	0.092	0.015	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:20	MSM	1303384
Lead	340	4.6	0.30	mg/kg dry wt.	50	USEPA-6020A	04/16/13 10:38	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS208-0002**
Lab Sample ID: **1304212-01**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:10**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	87	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS209-0002**
 Lab Sample ID: **1304212-02**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **2**
 QC Batch: **1303365**
 Percent Solids: **81**

Work Order: **1304212**
 Description: **Laboratory Services**
 Sampled: **04/12/13 12:15**
 Sampled By: **J.G.**
 Received: **04/13/13 08:45**
 Prepared: **04/15/13** By: **ALK**
 Analyzed: **04/16/13** By: **DWJ**
 Analytical Batch: **3D16006**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.079	0.041	0.011
208-96-8	Acenaphthylene	0.017J	0.041	0.010
120-12-7	Anthracene	0.18	0.041	0.0099
56-55-3	Benzo(a)anthracene	0.63	0.041	0.0068
50-32-8	Benzo(a)pyrene	0.57	0.041	0.0057
*205-99-2	Benzo(b)fluoranthene	0.65	0.041	0.0047
*207-08-9	Benzo(k)fluoranthene	0.38	0.041	0.0048
191-24-2	Benzo(g,h,i)perylene	0.34	0.041	0.0047
218-01-9	Chrysene	0.65	0.041	0.0096
53-70-3	Dibenz(a,h)anthracene	0.12	0.041	0.0047
206-44-0	Fluoranthene	0.99	0.041	0.011
86-73-7	Fluorene	0.068	0.041	0.0099
193-39-5	Indeno(1,2,3-cd)pyrene	0.31	0.041	0.0066
*91-57-6	2-Methylnaphthalene	0.034J	0.041	0.011
91-20-3	Naphthalene	0.030J	0.041	0.014
85-01-8	Phenanthrene	0.84	0.041	0.010
129-00-0	Pyrene	1.1	0.041	0.011

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5
67
35-100
2-Fluorobiphenyl
69
45-105
o-Terphenyl
38
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS209-0002**
Lab Sample ID: **1304212-02**
Matrix: **Soil**
Percent Solids: **81**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:15**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	11	0.50	0.082	mg/kg dry wt.	5	USEPA-6020A	04/16/13 10:40	MSM	1303384
Lead	510	10	0.66	mg/kg dry wt.	100	USEPA-6020A	04/16/13 10:39	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS209-0002**
Lab Sample ID: **1304212-02**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:15**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	81	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS210-0002**
Lab Sample ID: **1304212-03**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303365**
Percent Solids: **88**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:20**
Sampled By: **J.G.**
Received: **04/13/13 08:45**
Prepared: **04/15/13** By: **ALK**
Analyzed: **04/15/13** By: **ASC**
Analytical Batch: **3D15025**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.019U	0.019	0.0052
208-96-8	Acenaphthylene	0.019U	0.019	0.0047
120-12-7	Anthracene	0.019U	0.019	0.0045
56-55-3	Benzo(a)anthracene	0.019U	0.019	0.0031
50-32-8	Benzo(a)pyrene	0.019U	0.019	0.0026
*205-99-2	Benzo(b)fluoranthene	0.019U	0.019	0.0022
*207-08-9	Benzo(k)fluoranthene	0.019U	0.019	0.0022
191-24-2	Benzo(g,h,i)perylene	0.019U	0.019	0.0021
218-01-9	Chrysene	0.019U	0.019	0.0044
53-70-3	Dibenz(a,h)anthracene	0.019U	0.019	0.0022
206-44-0	Fluoranthene	0.019U	0.019	0.0051
86-73-7	Fluorene	0.019U	0.019	0.0046
193-39-5	Indeno(1,2,3-cd)pyrene	0.019U	0.019	0.0030
91-57-6	2-Methylnaphthalene	0.019U	0.019	0.0052
91-20-3	Naphthalene	0.019U	0.019	0.0063
85-01-8	Phenanthrene	0.019U	0.019	0.0046
129-00-0	Pyrene	0.019U	0.019	0.0049

Surrogates:

Nitrobenzene-d5

70

35-100

2-Fluorobiphenyl

81

45-105

o-Terphenyl

77

30-125

% Recovery

Control Limits

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS210-0002**
Lab Sample ID: **1304212-03**
Matrix: **Soil**
Percent Solids: **88**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:20**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	2.3	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:24	MSM	1303384
Lead	2.7	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:24	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS210-0002**
Lab Sample ID: **1304212-03**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:20**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	88	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS211-0002**
 Lab Sample ID: **1304212-04**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **5**
 QC Batch: **1303365**
 Percent Solids: **84**

Work Order: **1304212**
 Description: **Laboratory Services**
 Sampled: **04/12/13 12:25**
 Sampled By: **J.G.**
 Received: **04/13/13 08:45**
 Prepared: **04/15/13** By: **ALK**
 Analyzed: **04/16/13** By: **DWJ**
 Analytical Batch: **3D16006**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.099U	0.099	0.028
208-96-8	Acenaphthylene	0.099U	0.099	0.025
120-12-7	Anthracene	0.099U	0.099	0.024
56-55-3	Benzo(a)anthracene	0.052J	0.099	0.016
50-32-8	Benzo(a)pyrene	0.068J	0.099	0.014
*205-99-2	Benzo(b)fluoranthene	0.049J	0.099	0.011
*207-08-9	Benzo(k)fluoranthene	0.039J	0.099	0.012
191-24-2	Benzo(g,h,i)perylene	0.039J	0.099	0.011
218-01-9	Chrysene	0.052J	0.099	0.023
53-70-3	Dibenz(a,h)anthracene	0.099U	0.099	0.011
206-44-0	Fluoranthene	0.070J	0.099	0.027
86-73-7	Fluorene	0.099U	0.099	0.024
193-39-5	Indeno(1,2,3-cd)pyrene	0.039J	0.099	0.016
91-57-6	2-Methylnaphthalene	0.099U	0.099	0.027
91-20-3	Naphthalene	0.099U	0.099	0.033
85-01-8	Phenanthrene	0.049J	0.099	0.024
129-00-0	Pyrene	0.11	0.099	0.026

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

56

35-100

2-Fluorobiphenyl

56

45-105

o-Terphenyl

56

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS211-0002**
Lab Sample ID: **1304212-04**
Matrix: **Soil**
Percent Solids: **84**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:25**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.8	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:28	MSM	1303384
Lead	43	1.0	0.066	mg/kg dry wt.	10	USEPA-6020A	04/16/13 10:41	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS211-0002**
Lab Sample ID: **1304212-04**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:25**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	84	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS212-0002**
Lab Sample ID: **1304212-05**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303365**
Percent Solids: **80**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:30**
Sampled By: **J.G.**
Received: **04/13/13 08:45**
Prepared: **04/15/13** By: **ALK**
Analyzed: **04/15/13** By: **ASC**
Analytical Batch: **3D15025**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.21	0.021	0.0058
208-96-8	Acenaphthylene	0.013J	0.021	0.0052
120-12-7	Anthracene	0.10	0.021	0.0050
56-55-3	Benzo(a)anthracene	0.36	0.021	0.0034
50-32-8	Benzo(a)pyrene	0.26	0.021	0.0029
*205-99-2	Benzo(b)fluoranthene	0.33	0.021	0.0024
*207-08-9	Benzo(k)fluoranthene	0.17	0.021	0.0024
191-24-2	Benzo(g,h,i)perylene	0.091	0.021	0.0024
218-01-9	Chrysene	0.35	0.021	0.0049
*53-70-3	Dibenz(a,h)anthracene	0.027	0.021	0.0024
206-44-0	Fluoranthene	0.51	0.021	0.0056
86-73-7	Fluorene	0.14	0.021	0.0050
193-39-5	Indeno(1,2,3-cd)pyrene	0.11	0.021	0.0034
91-57-6	2-Methylnaphthalene	0.013J	0.021	0.0057
91-20-3	Naphthalene	0.024	0.021	0.0070
85-01-8	Phenanthrene	0.45	0.021	0.0051
129-00-0	Pyrene	0.70	0.021	0.0054

Surrogates:

Nitrobenzene-d5

76

35-100

2-Fluorobiphenyl

72

45-105

o-Terphenyl

68

30-125

% Recovery

Control Limits

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS212-0002**
Lab Sample ID: **1304212-05**
Matrix: **Soil**
Percent Solids: **80**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:30**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.4	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:29	MSM	1303384
Lead	220	5.0	0.33	mg/kg dry wt.	50	USEPA-6020A	04/16/13 10:42	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS212-0002**
Lab Sample ID: **1304212-05**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:30**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	80	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB232-0305**
Lab Sample ID: **1304212-06**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303365**
Percent Solids: **86**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:40**
Sampled By: **J.G.**
Received: **04/13/13 08:45**
Prepared: **04/15/13** By: **ALK**
Analyzed: **04/15/13** By: **ASC**
Analytical Batch: **3D15025**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.019U	0.019	0.0054
208-96-8	Acenaphthylene	0.019U	0.019	0.0049
*120-12-7	Anthracene	0.019U	0.019	0.0047
*56-55-3	Benzo(a)anthracene	0.019U	0.019	0.0032
50-32-8	Benzo(a)pyrene	0.019U	0.019	0.0027
*205-99-2	Benzo(b)fluoranthene	0.0024J	0.019	0.0022
*207-08-9	Benzo(k)fluoranthene	0.019U	0.019	0.0023
191-24-2	Benzo(g,h,i)perylene	0.0051J	0.019	0.0022
*218-01-9	Chrysene	0.019U	0.019	0.0045
53-70-3	Dibenz(a,h)anthracene	0.019U	0.019	0.0022
206-44-0	Fluoranthene	0.019U	0.019	0.0052
86-73-7	Fluorene	0.019U	0.019	0.0047
193-39-5	Indeno(1,2,3-cd)pyrene	0.019U	0.019	0.0031
91-57-6	2-Methylnaphthalene	0.019U	0.019	0.0053
91-20-3	Naphthalene	0.019U	0.019	0.0065
85-01-8	Phenanthrene	0.019U	0.019	0.0047
129-00-0	Pyrene	0.019U	0.019	0.0050

Surrogates:

Nitrobenzene-d5

71

35-100

2-Fluorobiphenyl

73

45-105

o-Terphenyl

71

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB232-0305**
Lab Sample ID: **1304212-06**
Matrix: **Soil**
Percent Solids: **86**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:40**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.1	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:30	MSM	1303384
Lead	7.0	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:30	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB232-0305**
Lab Sample ID: **1304212-06**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:40**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	86	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB233-0305**
Lab Sample ID: **1304212-07**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303365**
Percent Solids: **85**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:45**
Sampled By: **J.G.**
Received: **04/13/13 08:45**
Prepared: **04/15/13** By: **ALK**
Analyzed: **04/15/13** By: **ASC**
Analytical Batch: **3D15025**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.020U	0.020	0.0054
208-96-8	Acenaphthylene	0.020U	0.020	0.0049
120-12-7	Anthracene	0.020U	0.020	0.0047
56-55-3	Benzo(a)anthracene	0.011J	0.020	0.0032
50-32-8	Benzo(a)pyrene	0.011J	0.020	0.0027
*205-99-2	Benzo(b)fluoranthene	0.0097J	0.020	0.0022
*207-08-9	Benzo(k)fluoranthene	0.0077J	0.020	0.0023
191-24-2	Benzo(g,h,i)perylene	0.0081J	0.020	0.0022
218-01-9	Chrysene	0.014J	0.020	0.0046
*53-70-3	Dibenz(a,h)anthracene	0.020U	0.020	0.0022
206-44-0	Fluoranthene	0.015J	0.020	0.0053
86-73-7	Fluorene	0.020U	0.020	0.0047
*193-39-5	Indeno(1,2,3-cd)pyrene	0.0041J	0.020	0.0031
91-57-6	2-Methylnaphthalene	0.020U	0.020	0.0054
91-20-3	Naphthalene	0.020U	0.020	0.0066
85-01-8	Phenanthrene	0.011J	0.020	0.0048
129-00-0	Pyrene	0.018J	0.020	0.0051

Surrogates:

Nitrobenzene-d5

69

35-100

2-Fluorobiphenyl

69

45-105

o-Terphenyl

67

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB233-0305**
Lab Sample ID: **1304212-07**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:45**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	85	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB234-0305**
 Lab Sample ID: **1304212-08**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **10**
 QC Batch: **1303365**
 Percent Solids: **52**

Work Order: **1304212**
 Description: **Laboratory Services**
 Sampled: **04/12/13 12:55**
 Sampled By: **J.G.**
 Received: **04/13/13 08:45**
 Prepared: **04/15/13 By: ALK**
 Analyzed: **04/16/13 By: DWJ**
 Analytical Batch: **3D16006**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.26J	0.32	0.089
208-96-8	Acenaphthylene	0.16J	0.32	0.080
120-12-7	Anthracene	0.81	0.32	0.077
56-55-3	Benzo(a)anthracene	5.9	0.32	0.053
50-32-8	Benzo(a)pyrene	5.7	0.32	0.044
*205-99-2	Benzo(b)fluoranthene	6.6	0.32	0.037
*207-08-9	Benzo(k)fluoranthene	3.6	0.32	0.038
191-24-2	Benzo(g,h,i)perylene	2.8	0.32	0.036
218-01-9	Chrysene	5.8	0.32	0.075
*53-70-3	Dibenz(a,h)anthracene	0.66	0.32	0.037
206-44-0	Fluoranthene	5.0	0.32	0.086
86-73-7	Fluorene	0.35	0.32	0.078
193-39-5	Indeno(1,2,3-cd)pyrene	2.7	0.32	0.052
*91-57-6	2-Methylnaphthalene	0.12J	0.32	0.088
91-20-3	Naphthalene	0.24J	0.32	0.11
85-01-8	Phenanthrene	2.4	0.32	0.079
129-00-0	Pyrene	9.2	0.32	0.083

Surrogates:
Nitrobenzene-d5
% Recovery
Control Limits
35-100
2-Fluorobiphenyl
66
45-105
o-Terphenyl
61
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB234-0305**
Lab Sample ID: **1304212-08**
Matrix: **Soil**
Percent Solids: **52**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:55**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	6.6	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:34	MSM	1303384
Lead	220	5.0	0.33	mg/kg dry wt.	50	USEPA-6020A	04/16/13 10:46	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB234-0305**
Lab Sample ID: **1304212-08**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 12:55**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	52	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB235-0305**
 Lab Sample ID: **1304212-09**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **10**
 QC Batch: **1303365**
 Percent Solids: **72**

Work Order: **1304212**
 Description: **Laboratory Services**
 Sampled: **04/12/13 13:00**
 Sampled By: **J.G.**
 Received: **04/13/13 08:45**
 Prepared: **04/15/13 By: ALK**
 Analyzed: **04/16/13 By: DWJ**
 Analytical Batch: **3D16006**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.11J	0.23	0.064
208-96-8	Acenaphthylene	0.092J	0.23	0.058
120-12-7	Anthracene	0.46	0.23	0.056
56-55-3	Benzo(a)anthracene	1.5	0.23	0.038
50-32-8	Benzo(a)pyrene	1.3	0.23	0.032
*205-99-2	Benzo(b)fluoranthene	1.8	0.23	0.027
*207-08-9	Benzo(k)fluoranthene	1.0	0.23	0.027
191-24-2	Benzo(g,h,i)perylene	0.87	0.23	0.026
218-01-9	Chrysene	1.4	0.23	0.054
*53-70-3	Dibenz(a,h)anthracene	0.42	0.23	0.027
206-44-0	Fluoranthene	2.7	0.23	0.062
*86-73-7	Fluorene	0.12J	0.23	0.056
193-39-5	Indeno(1,2,3-cd)pyrene	0.82	0.23	0.037
*91-57-6	2-Methylnaphthalene	0.23U	0.23	0.064
91-20-3	Naphthalene	0.23U	0.23	0.078
85-01-8	Phenanthrene	1.7	0.23	0.057
129-00-0	Pyrene	2.5	0.23	0.060

Surrogates:
Nitrobenzene-d5
74
35-100
2-Fluorobiphenyl
68
45-105
o-Terphenyl
93
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB235-0305**
Lab Sample ID: **1304212-09**
Matrix: **Soil**
Percent Solids: **72**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 13:00**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	38	1.0	0.16	mg/kg dry wt.	10	USEPA-6020A	04/16/13 10:48	MSM	1303384
Lead	1800	20	1.3	mg/kg dry wt.	200	USEPA-6020A	04/16/13 10:47	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB235-0305**
Lab Sample ID: **1304212-09**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 13:00**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	72	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB236-0305**
Lab Sample ID: **1304212-10**
Matrix: **Soil**
Unit: **mg/kg dry**
Dilution Factor: **1**
QC Batch: **1303365**
Percent Solids: **86**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 13:10**
Sampled By: **J.G.**
Received: **04/13/13 08:45**
Prepared: **04/15/13** By: **ALK**
Analyzed: **04/15/13** By: **ASC**
Analytical Batch: **3D15025**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.015J	0.020	0.0054
*208-96-8	Acenaphthylene	0.020U	0.020	0.0049
120-12-7	Anthracene	0.037	0.020	0.0047
56-55-3	Benzo(a)anthracene	0.11	0.020	0.0032
50-32-8	Benzo(a)pyrene	0.10	0.020	0.0027
*205-99-2	Benzo(b)fluoranthene	0.11	0.020	0.0022
*207-08-9	Benzo(k)fluoranthene	0.081	0.020	0.0023
191-24-2	Benzo(g,h,i)perylene	0.057	0.020	0.0022
218-01-9	Chrysene	0.11	0.020	0.0045
53-70-3	Dibenz(a,h)anthracene	0.019J	0.020	0.0022
206-44-0	Fluoranthene	0.21	0.020	0.0052
86-73-7	Fluorene	0.011J	0.020	0.0047
193-39-5	Indeno(1,2,3-cd)pyrene	0.049	0.020	0.0031
91-57-6	2-Methylnaphthalene	0.020U	0.020	0.0053
*91-20-3	Naphthalene	0.020U	0.020	0.0065
85-01-8	Phenanthrene	0.12	0.020	0.0048
129-00-0	Pyrene	0.22	0.020	0.0050

Surrogates:

Nitrobenzene-d5

2-Fluorobiphenyl

o-Terphenyl

% Recovery

76

81

80

Control Limits

35-100

45-105

30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB236-0305**
Lab Sample ID: **1304212-10**
Matrix: **Soil**
Percent Solids: **86**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 13:10**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	4.9	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:36	MSM	1303384
Lead	26	0.50	0.033	mg/kg dry wt.	5	USEPA-6020A	04/16/13 10:49	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB236-0305**
Lab Sample ID: **1304212-10**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 13:10**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	86	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB237-0305**
Lab Sample ID: **1304212-11**
Matrix: **Soil**
Percent Solids: **81**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 13:05**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	2.5	0.091	0.015	mg/kg dry wt.	1	USEPA-6020A	04/16/13 10:37	MSM	1303384
Lead	31	0.46	0.030	mg/kg dry wt.	5	USEPA-6020A	04/16/13 10:49	MSM	1303384



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB237-0305**
Lab Sample ID: **1304212-11**
Matrix: **Soil**

Work Order: **1304212**
Description: **Laboratory Services**
Sampled: **04/12/13 13:05**
Sampled By: **J.G.**
Received: **04/13/13 08:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	81	0.1	0.1	%	1	USEPA-3550C	04/15/13 20:00	BAR	1303418



STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8270C

Sample/Analyte:	1304208-01	DASB228-0305	Benzo(a)pyrene
	1304208-01	DASB228-0305	Benzo(b)fluoranthene
	1304208-01	DASB228-0305	Benzo(k)fluoranthene
	1304208-01	DASB228-0305	Chrysene
	1304208-01	DASB228-0305	Naphthalene
	1304208-02	DASB229-0305	Benzo(b)fluoranthene
	1304208-02	DASB229-0305	Benzo(k)fluoranthene
	1304208-03	DASB230-0305	Benzo(a)anthracene
	1304208-03	DASB230-0305	Benzo(b)fluoranthene
	1304208-03	DASB230-0305	Benzo(k)fluoranthene
	1304208-03	DASB230-0305	Chrysene
	1304208-04	DASB231-0305	Benzo(b)fluoranthene
	1304208-04	DASB231-0305	Benzo(k)fluoranthene
	1304208-05	DASBFD-04	Benzo(a)anthracene
	1304208-05	DASBFD-04	Benzo(b)fluoranthene
	1304208-05	DASBFD-04	Benzo(k)fluoranthene
	1304208-05	DASBFD-04	Chrysene
	1304208-06	DASBFD-05	Benzo(b)fluoranthene
	1304208-06	DASBFD-05	Benzo(k)fluoranthene
	1304208-06	DASBFD-05	Indeno(1,2,3-cd)pyrene
	1304212-01	DASS208-0002	Acenaphthene
	1304212-01	DASS208-0002	Benzo(b)fluoranthene
	1304212-01	DASS208-0002	Benzo(k)fluoranthene
	1304212-01	DASS208-0002	Fluorene
	1304212-02	DASS209-0002	2-Methylnaphthalene
	1304212-02	DASS209-0002	Benzo(b)fluoranthene
	1304212-02	DASS209-0002	Benzo(k)fluoranthene
	1304212-03	DASS210-0002	Benzo(b)fluoranthene
	1304212-03	DASS210-0002	Benzo(k)fluoranthene
	1304212-04	DASS211-0002	Benzo(b)fluoranthene
	1304212-04	DASS211-0002	Benzo(k)fluoranthene
	1304212-05	DASS212-0002	Benzo(b)fluoranthene
	1304212-05	DASS212-0002	Benzo(k)fluoranthene
	1304212-05	DASS212-0002	Dibenz(a,h)anthracene
	1304212-06	DASB232-0305	Anthracene
	1304212-06	DASB232-0305	Benzo(a)anthracene
	1304212-06	DASB232-0305	Benzo(b)fluoranthene
	1304212-06	DASB232-0305	Benzo(k)fluoranthene
	1304212-06	DASB232-0305	Chrysene
	1304212-07	DASB233-0305	Benzo(b)fluoranthene
	1304212-07	DASB233-0305	Benzo(k)fluoranthene
	1304212-07	DASB233-0305	Dibenz(a,h)anthracene
	1304212-07	DASB233-0305	Indeno(1,2,3-cd)pyrene
	1304212-08	DASB234-0305	2-Methylnaphthalene
	1304212-08	DASB234-0305	Benzo(b)fluoranthene
	1304212-08	DASB234-0305	Benzo(k)fluoranthene
	1304212-08	DASB234-0305	Dibenz(a,h)anthracene
	1304212-09	DASB235-0305	2-Methylnaphthalene



STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8270C

Sample/Analyte:	1304212-09	DASB235-0305	Benzo(b)fluoranthene
	1304212-09	DASB235-0305	Benzo(k)fluoranthene
	1304212-09	DASB235-0305	Dibenz(a,h)anthracene
	1304212-09	DASB235-0305	Fluorene
	1304212-10	DASB236-0305	Acenaphthylene
	1304212-10	DASB236-0305	Benzo(b)fluoranthene
	1304212-10	DASB236-0305	Benzo(k)fluoranthene
	1304212-10	DASB236-0305	Naphthalene
	1304212-11	DASB237-0305	Anthracene
	1304212-11	DASB237-0305	Benzo(a)pyrene
	1304212-11	DASB237-0305	Benzo(b)fluoranthene
	1304212-11	DASB237-0305	Benzo(k)fluoranthene

Qualification: The RL for this analysis has been elevated due to sample matrix interference.

Analysis: USEPA-8270C

Sample:	1304212-01	DASS208-0002
	1304212-04	DASS211-0002



TETRA TECH NUS, INC.

CHART 2
(5-17)

CHAIN OF CUSTODY

NUMBER **Nº 2286**

PAGE **1** OF **1**

PROJECT NO: 112602435		FACILITY: USCG - Alameda		PROJECT MANAGER Joe Logan		PHONE NUMBER 412 921 7231		LABORATORY NAME AND CONTACT: Trimatrix / Gary Wood					
SAMPLERS (SIGNATURE) <i>[Signature]</i>				FIELD OPERATIONS LEADER Jim Goertt		PHONE NUMBER 412 443 0244		ADDRESS 5560 Corp Exchange Ct					
				CARRIER/WAYBILL NUMBER Trimatrix Pickup				CITY, STATE Grand Rapids, MI					
STANDARD TAT <input type="checkbox"/> RUSH TAT <input type="checkbox"/> <input checked="" type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day				CONTAINER TYPE PLASTIC (P) or GLASS (G) G		PRESERVATIVE USED							
DATE YEAR 2013	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (SW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS <i>Pb, As, PAHs, etc.</i>				
4/11	1516	DASB 228-0305	228	3	5	SS	G	1					
	1515	DASB 229-0305	229	1	1	1	1	1					
	1520	DASB 230-0305	230	1	1	1	1	1					
	1525	DASB 231-0305	231	1	1	1	1	1					
4/11	0000	DASB FD-04	QC	-	-	QC	1	1					
4/11	0000	DASB FD-05	QC	-	-	QC	1	1					
COMMENTS				COMMENTS 01E1304202 02 03 04 05 06									
1. RELINQUISHED BY <i>[Signature]</i>				DATE 4/12/13		TIME 0901		1. RECEIVED BY <i>[Signature]</i>				DATE 4/12/13	
2. RELINQUISHED BY <i>[Signature]</i>				DATE 4/13/13		TIME 1330		2. RECEIVED BY <i>[Signature]</i>				DATE 4/13/13	
3. RELINQUISHED BY <i>[Signature]</i>				DATE 4/12/13		TIME 1730		3. RECEIVED BY <i>[Signature]</i>				DATE 4-12-13	
COMMENTS													

DISTRIBUTION:

WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)

4/02R

SAMPLE RECEIVING / LOG-IN CHECKLIST



Client: <u>TETROTECH</u> Project/Record Page/Line #: <u>5-17</u>		Work Order #: <u>1304208</u> New / Add To: <u>ELW</u>	
Recorded by (initials/date): <u>JN 4-12-13</u>		<input checked="" type="checkbox"/> Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other: _____	
Dry Received: <u>1</u>		<input checked="" type="checkbox"/> (R Gun: #202) Thermometer Used: <input type="checkbox"/> Digital Thermometer (#54) <input type="checkbox"/> See Additional Cooler Information Form <input type="checkbox"/> Other: _____	

Cooler #	Time	Cooler #	Time	Cooler #	Time
<u>TM353</u>	<u>1750</u>				
Custody Seal: <input checked="" type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		Custody Seal: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		Custody Seal: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact	
Coolant Location: <u>Dispersed / Top / Middle / Bottom</u>		Coolant Location: <u>Dispersed / Top / Middle / Bottom</u>		Coolant Location: <u>Dispersed / Top / Middle / Bottom</u>	
Coolant/Temperature Taken Via: <input checked="" type="checkbox"/> Loose ice / Avg 2-3 containers <input type="checkbox"/> Bagged ice / Avg 2-3 containers <input type="checkbox"/> Blue ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers		Coolant/Temperature Taken Via: <input type="checkbox"/> Loose ice / Avg 2-3 containers <input type="checkbox"/> Bagged ice / Avg 2-3 containers <input type="checkbox"/> Blue ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers		Coolant/Temperature Taken Via: <input type="checkbox"/> Loose ice / Avg 2-3 containers <input type="checkbox"/> Bagged ice / Avg 2-3 containers <input type="checkbox"/> Blue ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers	
Alternate Temperature Taken Via: <input checked="" type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container		Alternate Temperature Taken Via: <input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container		Alternate Temperature Taken Via: <input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container	
Recorded °C	Correction Factor °C	Actual °C	Recorded °C	Correction Factor °C	Actual °C
Temp Blank: <u>0</u>		<u>3.8</u>	Temp Blank:		
TB location: Representative / Not Representative		TB location: Representative / Not Representative		TB location: Representative / Not Representative	
1	<u>3.7</u>	<u>0</u>	1		
2	<u>3.8</u>	<u>0</u>	2		
3	<u>4.2</u>	<u>0</u>	3		
Average °C: <u>3.9</u>		Average °C:		Average °C:	
<input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?		<input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?		<input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?	

If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input checked="" type="checkbox"/> Chain of Custody record(s)? If No, Initiated By: _____ <input type="checkbox"/> Received for Lab Signed/Date/Time? <input type="checkbox"/> Shipping document? <input type="checkbox"/> Other: _____	Check Sample Preservation N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> Average sample temperature 55° C? <input type="checkbox"/> Was thermal preservation required? If "No", Project Chemist Approval Initials: _____ If "Yes" Completed Non Con Cooler - Cont Inventory Form? <input checked="" type="checkbox"/> Completed Sample Preservation Verification Form? <input checked="" type="checkbox"/> Samples chemically preserved correctly? If "No", added orange tag? <input checked="" type="checkbox"/> Received pre-preserved VOC soils? <input type="checkbox"/> MeOH <input type="checkbox"/> Na ₂ SO ₄
COC Information <input checked="" type="checkbox"/> Trimatrix COC <input type="checkbox"/> Other: <u>TETROTECH</u> COC ID Numbers: <u>2286</u>	Check for Short Hold-Time Prep/Analyses <input type="checkbox"/> Bacteriological <input type="checkbox"/> Air Bags <input type="checkbox"/> EnCores / Methanol Pre-Preserved <input type="checkbox"/> Formaldehyde/Aldehyde <input type="checkbox"/> Green-lagged containers <input type="checkbox"/> Yellow/White-lagged 1L embers (SV Prep-Lab)

Check COC for Accuracy Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> Analysis Requested? <input checked="" type="checkbox"/> Sample ID matches COC? <input checked="" type="checkbox"/> Sample Date and Time matches COC? <input type="checkbox"/> Container type completed on COC? <input type="checkbox"/> All container types indicated are received?	Notes <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> AFTER HOURS ONLY: COPIES OF COC TO LAB AREA(S) <input type="checkbox"/> NONE RECEIVED <input checked="" type="checkbox"/> RECEIVED, COCs TO LAB(S) </div>
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Sample Condition Summary N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> Broken containers/pkts? <input type="checkbox"/> Missing or incomplete labels? <input type="checkbox"/> Negligible information on labels? <input type="checkbox"/> Low volume received? <input type="checkbox"/> Inappropriate or non-Trimatrix containers received? <input type="checkbox"/> VOC vials / TOX containers have headspace? <input type="checkbox"/> Extra sample locations / containers not listed on COC?	Notes <u>RUSH</u> <input type="checkbox"/> Trip Blank received <input type="checkbox"/> Trip Blank not listed on COC Cooler Received (Date/Time): <u>4/12-13</u> Paperwork Delivered (Date/Time): <u>4/12-13</u> 51 Hour Goal Met? <u>Yes / No</u>
--	--



TETRA TECHNUS, INC.

CHAIN OF CUSTODY

NUMBER

Nº

2287

PAGE

1 OF

7-1

PROJECT NO: 113602435		FACILITY: USCG-Atwater		PROJECT MANAGER Joe Lopez		PHONE NUMBER 4129217231		LABORATORY NAME AND CONTACT: Trimatrix/Gary Wood	
SAMPLERS (SIGNATURE) <i>[Signature]</i>				FIELD OPERATIONS LEADER Jim Gervais		PHONE NUMBER 4124430244		ADDRESS 5560 Corp Exchange St	
				CARRIER/WAYBILL NUMBER 8020 3157 7719				CITY, STATE Grand Rapids, MI	
STANDARD TAT <input type="checkbox"/> RUSH TAT <input type="checkbox"/> <input checked="" type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day				CONTAINER TYPE PLASTIC (P) or GLASS (G) G		PRESERVATIVE USED			
DATE 2013	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, OC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS PO, AS, PAH, 40C
01	1210	DASS208-0002	208	0	2	SO	G	1	
02	1215	DASS209-0002	209					1	
03	1220	DASS210-0002	210					1	
04	1225	DASS211-0002	211					1	
05	1230	DASS212-0002	212					1	
06	1240	DASB232-0305	232	3	5			1	
07	1245	DASB233-0305	233					1	
08	1255	DASB234-0305	234					1	
09	1300	DASB235-0305	235					1	
10	1310	DASB236-0305	236					1	
11	1305	DASB237-0305	237					1	
1. RELINQUISHED BY <i>[Signature]</i>				DATE 4/12/13		TIME 1525		1. RECEIVED BY	
2. RELINQUISHED BY				DATE		TIME		2. RECEIVED BY	
3. RELINQUISHED BY				DATE		TIME		3. RECEIVED BY <i>[Signature]</i>	
COMMENTS				DATE 4/13/13		TIME 0845			

DISTRIBUTION:

WHITE (ACCOMPANIES SAMPLE)

YELLOW (FIELD COPY)

PINK (FILE COPY)

4/02R

SAMPLE RECEIVING / LOG-IN CHECKLIST



Client: <u>Tetra Tech NUS, Inc</u>	Work Order #: <u>1304212</u>
Receiv Record Page/Line #	Projn Chemist: Sample #s

Recorded by (Initials/Date): <u>La 4/13/13</u>	<input checked="" type="checkbox"/> Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other	Qty Received: <u>1</u>	<input checked="" type="checkbox"/> IR Gun (#202) Thermometer Used: <input type="checkbox"/> Digital Thermometer (#54) <input type="checkbox"/> See Additional Cooler Information Form <input type="checkbox"/> Other (if)
---	--	---------------------------	--

Cooler #	Time	Cooler #	Time	Cooler #	Time	Cooler #	Time	
3125	0908							
Custody Seals:		Custody Seals:		Custody Seals:		Custody Seals:		
<input type="checkbox"/> None <input checked="" type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		<input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		<input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		<input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact		
Coolant Location:		Coolant Location:		Coolant Location:		Coolant Location:		
<u>Dispersed</u> / Top / Middle / Bottom		Dispersed / Top / Middle / Bottom		Dispersed / Top / Middle / Bottom		Dispersed / Top / Middle / Bottom		
Coolant Temperature Taken Via:		Coolant Temperature Taken Via:		Coolant Temperature Taken Via:		Coolant Temperature Taken Via:		
<input checked="" type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers		<input type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers		<input type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers		<input type="checkbox"/> Loose Ice / Avg 2-3 containers <input type="checkbox"/> Bagged Ice / Avg 2-3 containers <input type="checkbox"/> Blue Ice / Avg 2-3 containers <input type="checkbox"/> None / Avg 2-3 containers		
Alternate Temperature Taken Via:		Alternate Temperature Taken Via:		Alternate Temperature Taken Via:		Alternate Temperature Taken Via:		
<input checked="" type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container		<input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container		<input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container		<input type="checkbox"/> Temperature Blank (TB) <input type="checkbox"/> 1 Container		
Recorded °C	Correction Factor °C	Actual °C	Recorded °C	Correction Factor °C	Actual °C	Recorded °C	Correction Factor °C	
Temp Blank	-	3.9	Temp Blank			Temp Blank		
TB location: <u>Representative</u> / Not Representative			TB location: Representative / Not Representative			TB location: Representative / Not Representative		
1	5.0	-	5.0	1		1		
2	5.1	-	5.1	2		2		
3	4.1	-	4.1	3		3		
Average °C			Average °C			Average °C		
<input type="checkbox"/> Cooler ID on COC? <u>4.7</u> <input type="checkbox"/> VOC Trip Blank received?			<input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?			<input type="checkbox"/> Cooler ID on COC? <input type="checkbox"/> VOC Trip Blank received?		

If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input checked="" type="checkbox"/> Chain of Custody record(s)? If No, Initialed By _____ <input checked="" type="checkbox"/> Received for Lab Signed/Date/Time? <input type="checkbox"/> Shipping document? <input type="checkbox"/> Other COC Information <input type="checkbox"/> TriMatrix COC <input checked="" type="checkbox"/> Other <u>2287</u> COC ID Number:	Check Sample Preservation N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> <input checked="" type="checkbox"/> Average sample temperature ≤ 6° C? <input type="checkbox"/> Was thermal preservation required? If "No", Project Chemist Approval Initials: _____ If "Yes" Completed Non-Con Cooler - Cont Inventory Form? <input checked="" type="checkbox"/> Completed Sample Preservation Verification Form? <input checked="" type="checkbox"/> Samples chemically preserved correctly? If "No", added orange tag? <input type="checkbox"/> Received pre-preserved VOC soils? <input type="checkbox"/> MeOH <input type="checkbox"/> Na ₂ SO ₃				
Check COC for Accuracy Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/> Analysis Requested? <input checked="" type="checkbox"/> Sample ID matches COC? <input checked="" type="checkbox"/> Sample Date and Time matches COC? <input checked="" type="checkbox"/> Container type completed on COC? <input checked="" type="checkbox"/> All container types indicated are received?	Check for Short Hold-Time Prep/Analyses <input type="checkbox"/> Bacteriological <input type="checkbox"/> Air Bags <input type="checkbox"/> EnCores / Methanol Pre-Preserved <input type="checkbox"/> Formaldehyde/Aldehyde <input type="checkbox"/> Green-tagged containers <input type="checkbox"/> Yellow/White-tagged 1L ambars (SV Prep-Lab)				
Sample Condition Summary N/A <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> <input checked="" type="checkbox"/> Broken containers/lids? <input checked="" type="checkbox"/> Missing or incomplete labels? <input checked="" type="checkbox"/> Illegible information on labels? <input checked="" type="checkbox"/> Low volume received? <input checked="" type="checkbox"/> Inappropriate or non-TriMatrix containers received? <input type="checkbox"/> VOC vials / TOX containers have headspace? <input type="checkbox"/> Extra sample locations / containers not listed on COC?	Notes <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> AFTER HOURS ONLY: COPIES OF COC TO LAB AREA(S) <input type="checkbox"/> NONE RECEIVED <input checked="" type="checkbox"/> RECEIVED; COCs TO LAB(S) </div>				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"> <input type="checkbox"/> Trip Blank received Cooler Received (Date/Time): <u>4/13/13 0845</u> </td> <td style="width: 50%;"> <input type="checkbox"/> Trip Blank not listed on COC Paperwork Delivered (Date/Time): <u>4/13/13 0914</u> </td> </tr> <tr> <td colspan="2" style="text-align: right;"> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> </td> </tr> </table>		<input type="checkbox"/> Trip Blank received Cooler Received (Date/Time): <u>4/13/13 0845</u>	<input type="checkbox"/> Trip Blank not listed on COC Paperwork Delivered (Date/Time): <u>4/13/13 0914</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<input type="checkbox"/> Trip Blank received Cooler Received (Date/Time): <u>4/13/13 0845</u>	<input type="checkbox"/> Trip Blank not listed on COC Paperwork Delivered (Date/Time): <u>4/13/13 0914</u>				
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>					



April 23, 2013

TETRA TECH NUS - Pittsburgh
Attn: Mr. Joe Logan
661 Anderson Drive, Foster Plaza 7
Pittsburgh, PA 15220

Project: USCG Atwater Facility

Dear Mr. Joe Logan,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

Work Order	Received	Description
1304314	04/18/2013	Laboratory Services

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

ACLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/12-056-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003059); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#83658); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/48855); North Carolina DNRE (#659); Texas CEQ (#T104704495-13-3); Virginia DCLS (#460153/1622); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-12-00236).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications section of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Gary L. Wood
Project Chemist

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS244-0002**
 Lab Sample ID: **1304314-01**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **20**
 QC Batch: **1303525**
 Percent Solids: **88**

Work Order: **1304314**
 Description: **Laboratory Services**
 Sampled: **04/17/13 17:30**
 Sampled By: **J.G.**
 Received: **04/18/13 17:30**
 Prepared: **04/19/13 By: JTS**
 Analyzed: **04/22/13 By: JLB**
 Analytical Batch: **3D22051**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.38U	0.38	0.11
208-96-8	Acenaphthylene	0.38U	0.38	0.095
120-12-7	Anthracene	0.38U	0.38	0.091
56-55-3	Benzo(a)anthracene	0.15J	0.38	0.062
*50-32-8	Benzo(a)pyrene	0.14J	0.38	0.052
*205-99-2	Benzo(b)fluoranthene	0.17J	0.38	0.043
*207-08-9	Benzo(k)fluoranthene	0.11J	0.38	0.044
*191-24-2	Benzo(g,h,i)perylene	0.083J	0.38	0.043
218-01-9	Chrysene	0.15J	0.38	0.088
53-70-3	Dibenz(a,h)anthracene	0.38U	0.38	0.043
*206-44-0	Fluoranthene	0.26J	0.38	0.10
86-73-7	Fluorene	0.38U	0.38	0.091
193-39-5	Indeno(1,2,3-cd)pyrene	0.38U	0.38	0.061
91-57-6	2-Methylnaphthalene	0.38U	0.38	0.10
91-20-3	Naphthalene	0.38U	0.38	0.13
85-01-8	Phenanthrene	0.11J	0.38	0.093
129-00-0	Pyrene	0.22J	0.38	0.098

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS244-0002**
Lab Sample ID: **1304314-01**
Matrix: **Soil**
Percent Solids: **88**

Work Order: **1304314**
Description: **Laboratory Services**
Sampled: **04/17/13 17:30**
Sampled By: **J.G.**
Received: **04/18/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
*Arsenic	6.3	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/22/13 11:52	KLV	1303582
*Lead	430	10	0.66	mg/kg dry wt.	100	USEPA-6020A	04/22/13 09:41	KLV	1303582

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS244-0002**
Lab Sample ID: **1304314-01**
Matrix: **Soil**

Work Order: **1304314**
Description: **Laboratory Services**
Sampled: **04/17/13 17:30**
Sampled By: **J.G.**
Received: **04/18/13 17:30**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	88	0.1	0.1	%	1	USEPA-3550C	04/19/13 19:15	BAR	1303589

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASS245-0002**
 Lab Sample ID: **1304314-02**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **10**
 QC Batch: **1303525**
 Percent Solids: **83**

Work Order: **1304314**
 Description: **Laboratory Services**
 Sampled: **04/17/13 15:00**
 Sampled By: **J.G.**
 Received: **04/18/13 17:30**
 Prepared: **04/19/13 By: JTS**
 Analyzed: **04/19/13 By: DWJ**
 Analytical Batch: **3D22010**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.084J	0.20	0.056
208-96-8	Acenaphthylene	0.20U	0.20	0.050
*120-12-7	Anthracene	0.20J	0.20	0.048
*56-55-3	Benzo(a)anthracene	0.51	0.20	0.033
*50-32-8	Benzo(a)pyrene	0.47	0.20	0.028
*205-99-2	Benzo(b)fluoranthene	0.59	0.20	0.023
*207-08-9	Benzo(k)fluoranthene	0.29	0.20	0.023
*191-24-2	Benzo(g,h,i)perylene	0.14J	0.20	0.023
218-01-9	Chrysene	0.39	0.20	0.047
53-70-3	Dibenz(a,h)anthracene	0.20U	0.20	0.023
*206-44-0	Fluoranthene	1.0	0.20	0.054
86-73-7	Fluorene	0.10J	0.20	0.048
*193-39-5	Indeno(1,2,3-cd)pyrene	0.22	0.20	0.032
91-57-6	2-Methylnaphthalene	0.20U	0.20	0.055
*91-20-3	Naphthalene	0.20U	0.20	0.067
*85-01-8	Phenanthrene	0.83	0.20	0.049
*129-00-0	Pyrene	0.78	0.20	0.052

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5
57
35-100
2-Fluorobiphenyl
64
45-105
o-Terphenyl
85
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS245-0002**
Lab Sample ID: **1304314-02**
Matrix: **Soil**
Percent Solids: **83**

Work Order: **1304314**
Description: **Laboratory Services**
Sampled: **04/17/13 15:00**
Sampled By: **J.G.**
Received: **04/18/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	9.4	0.20	0.033	mg/kg dry wt.	2	USEPA-6020A	04/22/13 12:49	KLV	1303582
*Lead	620	10	0.66	mg/kg dry wt.	100	USEPA-6020A	04/22/13 09:50	KLV	1303582

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS245-0002**
Lab Sample ID: **1304314-02**
Matrix: **Soil**

Work Order: **1304314**
Description: **Laboratory Services**
Sampled: **04/17/13 15:00**
Sampled By: **J.G.**
Received: **04/18/13 17:30**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	83	0.1	0.1	%	1	USEPA-3550C	04/19/13 19:15	BAR	1303589



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: USCG Atwater Facility
Client Sample ID: **DASS246-0002**
Lab Sample ID: **1304314-03**
Matrix: Soil
Unit: mg/kg dry
Dilution Factor: 10
QC Batch: 1303525
Percent Solids: 83

Work Order: **1304314**
Description: Laboratory Services
Sampled: 04/17/13 15:10
Sampled By: J.G.
Received: 04/18/13 17:30
Prepared: 04/19/13 By: JTS
Analyzed: 04/19/13 By: DWJ
Analytical Batch: 3D22010

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.20U	0.20	0.056
208-96-8	Acenaphthylene	0.20U	0.20	0.050
120-12-7	Anthracene	0.20U	0.20	0.048
56-55-3	Benzo(a)anthracene	0.13J	0.20	0.033
*50-32-8	Benzo(a)pyrene	0.095J	0.20	0.028
*205-99-2	Benzo(b)fluoranthene	0.14J	0.20	0.023
*207-08-9	Benzo(k)fluoranthene	0.079J	0.20	0.024
191-24-2	Benzo(g,h,i)perylene	0.046J	0.20	0.023
218-01-9	Chrysene	0.099J	0.20	0.047
53-70-3	Dibenz(a,h)anthracene	0.20U	0.20	0.023
206-44-0	Fluoranthene	0.18J	0.20	0.054
86-73-7	Fluorene	0.20U	0.20	0.049
193-39-5	Indeno(1,2,3-cd)pyrene	0.13J	0.20	0.032
91-57-6	2-Methylnaphthalene	0.20U	0.20	0.055
91-20-3	Naphthalene	0.20U	0.20	0.068
85-01-8	Phenanthrene	0.12J	0.20	0.049
129-00-0	Pyrene	0.15J	0.20	0.052

Surrogates:

	% Recovery	Control Limits
Nitrobenzene-d5	65	35-100
2-Fluorobiphenyl	85	45-105
o-Terphenyl	105	30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS246-0002**
Lab Sample ID: **1304314-03**
Matrix: **Soil**
Percent Solids: **83**

Work Order: **1304314**
Description: **Laboratory Services**
Sampled: **04/17/13 15:10**
Sampled By: **J.G.**
Received: **04/18/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.6	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/22/13 12:23	KLV	1303582
*Lead	52	1.0	0.066	mg/kg dry wt.	10	USEPA-6020A	04/22/13 09:58	KLV	1303582

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASS246-0002**
Lab Sample ID: **1304314-03**
Matrix: **Soil**

Work Order: **1304314**
Description: **Laboratory Services**
Sampled: **04/17/13 15:10**
Sampled By: **J.G.**
Received: **04/18/13 17:30**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	83	0.1	0.1	%	1	USEPA-3550C	04/19/13 19:15	BAR	1303589



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB-CF-01**
Lab Sample ID: **1304314-04**
Matrix: **Soil**
Percent Solids: **n/a**

Work Order: **1304314**
Description: **Laboratory Services**
Sampled: **04/17/13 07:40**
Sampled By: **J.G.**
Received: **04/18/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	3.3	0.092	0.015	mg/kg dry wt.	1	USEPA-6020A	04/22/13 12:36	KLV	1303582
Lead	3.4	0.092	0.0061	mg/kg dry wt.	1	USEPA-6020A	04/22/13 09:28	KLV	1303582



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB-CF-02**
Lab Sample ID: **1304314-05**
Matrix: **Soil**
Percent Solids: **n/a**

Work Order: **1304314**
Description: **Laboratory Services**
Sampled: **04/17/13 15:20**
Sampled By: **J.G.**
Received: **04/18/13 17:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	3.6	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/22/13 12:38	KLV	1303582
Lead	3.6	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	04/22/13 09:31	KLV	1303582



STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	1304314-01	DASS244-0002	Fluoranthene
	1304314-02	DASS245-0002	Benzo(a)anthracene
	1304314-02	DASS245-0002	Benzo(b)fluoranthene
	1304314-02	DASS245-0002	Fluoranthene
	1304314-02	DASS245-0002	Indeno(1,2,3-cd)pyrene
	1304314-02	DASS245-0002	Phenanthrene
	1304314-02	DASS245-0002	Pyrene

Qualification: The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	1304314-02	DASS245-0002	Benzo(a)anthracene
	1304314-02	DASS245-0002	Benzo(b)fluoranthene
	1304314-02	DASS245-0002	Benzo(g,h,i)perylene
	1304314-02	DASS245-0002	Fluoranthene
	1304314-02	DASS245-0002	Indeno(1,2,3-cd)pyrene
	1304314-02	DASS245-0002	Phenanthrene
	1304314-02	DASS245-0002	Pyrene

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	1304314-02	DASS245-0002	Anthracene
	1304314-02	DASS245-0002	Benzo(a)pyrene
	1304314-03	DASS246-0002	Benzo(a)pyrene
	1304314-03	DASS246-0002	Benzo(b)fluoranthene

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8270C

Sample/Analyte:	1303525-BS1		Naphthalene
	1303525-MS1		Benzo(b)fluoranthene
	1303525-MS1		Indeno(1,2,3-cd)pyrene
	1303525-MS2		Naphthalene
	1303525-MS2		Nitrobenzene-d5
	1303525-MSD1		Benzo(b)fluoranthene
	1303525-MSD2		Benzo(b)fluoranthene
	1303525-MSD2		Dibenz(a,h)anthracene
	1303525-MSD2		Indeno(1,2,3-cd)pyrene
	1303525-MSD2		Nitrobenzene-d5
	1304314-01	DASS244-0002	Benzo(a)pyrene
	1304314-01	DASS244-0002	Benzo(b)fluoranthene



STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C (Continued)

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8270C

Sample/Analyte:	1304314-01	DASS244-0002	Benzo(g,h,i)perylene
	1304314-01	DASS244-0002	Benzo(k)fluoranthene
	1304314-02	DASS245-0002	Benzo(b)fluoranthene
	1304314-02	DASS245-0002	Benzo(k)fluoranthene
	1304314-02	DASS245-0002	Indeno(1,2,3-cd)pyrene
	1304314-02	DASS245-0002	Naphthalene
	1304314-03	DASS246-0002	Benzo(b)fluoranthene
	1304314-03	DASS246-0002	Benzo(k)fluoranthene

Qualification: The RL for this analysis has been elevated due to sample matrix interference.

Analysis: USEPA-8270C

Sample: 1303525-MS1
1303525-MS2
1303525-MS3
1303525-MSD1
1303525-MSD2
1303525-MSD3
1304314-01 DASS244-0002
1304314-02 DASS245-0002
1304314-03 DASS246-0002

Qualification: Surrogate results are unavailable due to sample matrix interference(s), resulting in a dilution. Surrogate concentrations were diluted below the calibration range.

Analysis: USEPA-8270C

Sample: 1303525-MS1
1304314-01 DASS244-0002



STATEMENT OF DATA QUALIFICATIONS

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte:	1304314-01	DASS244-0002	Arsenic
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Qualification: Matrix QC results are not available due to sample dilution.

Analysis: USEPA-6020A

Sample/Analyte:	1304314-01	DASS244-0002	Lead
	1304314-02	DASS245-0002	Lead
	1304314-03	DASS246-0002	Lead



TETRA TECH NUS, INC.

1304314

(15-14) CART 9

CHAIN OF CUSTODY

NUMBER

Nº

2288

PAGE 1 OF 1

PROJECT NO: 112G02435		FACILITY: USCG-Atwater		PROJECT MANAGER Joe Logan		PHONE NUMBER 412-921-7231		LABORATORY NAME AND CONTACT: Trimatrix/Gary Wood			
SAMPLERS (SIGNATURE) 				FIELD OPERATIONS LEADER Jim Goerdt		PHONE NUMBER 412-443-0244		ADDRESS 5560 Corp Exchange Ct			
				CARRIER/WAYBILL NUMBER Trimatrix Pickup				CITY, STATE Grand Rapids, MI			
STANDARD TAT <input type="checkbox"/> RUSH TAT <input type="checkbox"/> <input checked="" type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day								CONTAINER TYPE PLASTIC (P) or GLASS (G)		PRESERVATIVE USED	
								TYPE OF ANALYSIS Pb, As, PAHs, 40C, 40C, G, G			
DATE YEAR 2013	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	COMMENTS		
12/17	1445	DASS244-0002	244	0	2	SO	G	2	2	-	ms/msd
102	1500	DASS245-0002	245	0	2			2	2	-	ms/msd
103	1510	DASS246-0002	246	0	2			2	2	-	ms/msd
1304	740	DASB-CF-01	-	-	-			1	1	1	
105	1520	DASB-CF-02	-	-	-			1	1	1	
1. RELINQUISHED BY				DATE 9/18/13		TIME 1326		1. RECEIVED BY			
2. RELINQUISHED BY				DATE 9/18/13		TIME 1415		2. RECEIVED BY			
3. RELINQUISHED BY				DATE 4/18/13		TIME 1730		3. RECEIVED BY			
COMMENTS											

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April 25, 2013

TETRA TECH NUS - Pittsburgh
Attn: Mr. Joe Logan
661 Anderson Drive, Foster Plaza 7
Pittsburgh, PA 15220

Project: USCG Atwater Facility

Dear Mr. Joe Logan,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

Work Order	Received	Description
1304363	04/23/2013	Laboratory Services

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

ACLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/12-056-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003059); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#83658); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/48855); North Carolina DNRE (#659); Texas CEQ (#T104704495-13-3); Virginia DCLS (#460153/1622); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-12-00236).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications section of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Gary L. Wood
Project Chemist



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB-CF-03**
Lab Sample ID: **1304363-01**
Matrix: **Soil**
Percent Solids: **n/a**

Work Order: **1304363**
Description: **Laboratory Services**
Sampled: **04/19/13 09:45**
Sampled By: **Tetra Tech NUS**
Received: **04/23/13 18:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	3.3	0.10	0.016	mg/kg dry wt.	1	USEPA-6020A	04/25/13 13:21	DSC	1303713
Lead	3.3	0.10	0.0066	mg/kg dry wt.	1	USEPA-6020A	04/25/13 13:21	DSC	1303713

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DASB-CF-04**
 Lab Sample ID: **1304363-02**
 Matrix: **Soil**
 Unit: **mg/kg dry**
 Dilution Factor: **4**
 QC Batch: **1303708**
 Percent Solids: **84**

Work Order: **1304363**
 Description: **Laboratory Services**
 Sampled: **04/23/13 11:10**
 Sampled By: **Tetra Tech NUS**
 Received: **04/23/13 18:45**
 Prepared: **04/24/13 By: JTS**
 Analyzed: **04/24/13 By: ASC**
 Analytical Batch: **3D25003**

***Semivolatile Organic Compounds by EPA Method 8270C**

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.080U	0.080	0.022
208-96-8	Acenaphthylene	0.080U	0.080	0.020
120-12-7	Anthracene	0.080U	0.080	0.019
56-55-3	Benzo(a)anthracene	0.067J	0.080	0.013
50-32-8	Benzo(a)pyrene	0.070J	0.080	0.011
*205-99-2	Benzo(b)fluoranthene	0.099	0.080	0.0091
*207-08-9	Benzo(k)fluoranthene	0.052J	0.080	0.0093
191-24-2	Benzo(g,h,i)perylene	0.028J	0.080	0.0090
218-01-9	Chrysene	0.070J	0.080	0.019
53-70-3	Dibenz(a,h)anthracene	0.080U	0.080	0.0091
206-44-0	Fluoranthene	0.13	0.080	0.021
86-73-7	Fluorene	0.080U	0.080	0.019
193-39-5	Indeno(1,2,3-cd)pyrene	0.020J	0.080	0.013
91-57-6	2-Methylnaphthalene	0.080U	0.080	0.022
91-20-3	Naphthalene	0.080U	0.080	0.027
85-01-8	Phenanthrene	0.060J	0.080	0.020
129-00-0	Pyrene	0.13	0.080	0.021

Surrogates:
2-Fluorophenol
83
35-105
Phenol-d6
85
40-100
Nitrobenzene-d5
85
35-100
2-Fluorobiphenyl
84
45-105
2,4,6-Tribromophenol
72
35-125
o-Terphenyl
82
30-125

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB-CF-04**
Lab Sample ID: **1304363-02**
Matrix: **Soil**
Percent Solids: **84**

Work Order: **1304363**
Description: **Laboratory Services**
Sampled: **04/23/13 11:10**
Sampled By: **Tetra Tech NUS**
Received: **04/23/13 18:45**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	3.2	0.094	0.015	mg/kg dry wt.	1	USEPA-6020A	04/25/13 13:36	DSC	1303713
Lead	12	0.47	0.031	mg/kg dry wt.	5	USEPA-6020A	04/25/13 13:53	DSC	1303713



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DASB-CF-04**
Lab Sample ID: **1304363-02**
Matrix: **Soil**

Work Order: **1304363**
Description: **Laboratory Services**
Sampled: **04/23/13 11:10**
Sampled By: **Tetra Tech NUS**
Received: **04/23/13 18:45**

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Percent Solids	84	0.1	0.1	%	1	USEPA-3550C	04/25/13 09:12	LMA	1303738



STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8270C

Sample/Analyte: 1303708-BS1

1304363-02

1304363-02

DASB-CF-04

DASB-CF-04

Naphthalene

Benzo(b)fluoranthene

Benzo(k)fluoranthene

Qualification: The RL for this analysis has been elevated due to sample matrix interference.

Analysis: USEPA-8270C

Sample: 1304363-02

DASB-CF-04



TETRA TECHNUS, INC.

CHAIN OF CUSTODY

NUMBER **Nº 2289**

PAGE **1** OF **1**

R-1304363 Chart 4

PROJECT NO: 112602435 **FACILITY:** USCG - Alutier **PROJECT MANAGER:** Joe Logan **PHONE NUMBER:** 412 921 7231 **LABORATORY NAME AND CONTACT:** Trimatrix / Gary Wood

SAMPLERS (SIGNATURE): [Signature] **FIELD OPERATIONS LEADER:** Jim Goetzl **PHONE NUMBER:** 412 443 0244 **ADDRESS:** 5560 Corp Exchange Ct.

CARRIER/WAYBILL NUMBER: Trimatrix Courier **CITY, STATE:** Grand Rapids, MI

STANDARD TAT ☐ **RUSH TAT** ☒ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE: PLASTIC (P) or GLASS (G) **PRESERVATIVE USED:**

DATE	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SQ, ETC.)	COLLECTION METHOD (GRAB (G) COMP (C))	NO. OF CONTAINERS (#/17)	TYPE OF ANALYSIS	COMMENTS
4/23/13	1945	DASB-CF-03	-	-	-	SO	G	1	Pb, As	- 01 sand
4/23/13	1110	DASB-CF-04	-	-	-	SO	G	1	Pb, As, PAHs	- 02 top soil

1. RELINQUISHED BY: [Signature] **DATE:** 4-23-13 **TIME:** 1210 **1. RECEIVED BY:** [Signature] **DATE:** 4-23-13 **TIME:** 1210

2. RELINQUISHED BY: [Signature] **DATE:** 4-23-13 **TIME:** 1425 **2. RECEIVED BY:** [Signature] **DATE:** 4-23-13 **TIME:** 1425

3. RELINQUISHED BY: [Signature] **DATE:** 4-23-13 **TIME:** 1845 **3. RECEIVED BY:** D. D. KARDIN **DATE:** 4-23-13 **TIME:** 1845

COMMENTS:


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SAMPLE RECEIVING / LOG-IN CHECKLIST

 TRIMATRIX LABORATORIES		Client: <u>TETRO TECH</u>		Work Order #: <u>1304363</u>	
		Receipt Record Paperline #: <u>24-21</u>		Project Chemist: <u>PLC</u>	

Recorded by (Initials/date): <u>DN4-23-13</u>		<input checked="" type="checkbox"/> Cooler	Daily Received: <u>1</u>	<input checked="" type="checkbox"/> IR Gun (#202)	<input type="checkbox"/> See Additional Cooler Information Form
<input type="checkbox"/> Box		<input type="checkbox"/> Other: _____		Thermistor Used: <input type="checkbox"/> Digital Thermometer (#54)	<input type="checkbox"/> Other (# _____)

Cooler #: <u>1143M2</u> Time: <u>3/33</u>	Cooler #: _____ Time: _____	Cooler #: _____ Time: _____	Cooler #: _____ Time: _____																																																																																				
Custody Seals: <input checked="" type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact	Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact	Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact	Custody Seals: <input type="checkbox"/> None <input type="checkbox"/> Present / Intact <input type="checkbox"/> Present / Not Intact																																																																																				
Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom																																																																																				
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If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received Yes No <input checked="" type="checkbox"/> Chain of Custody record(s)? If No, Initiated By _____ <input checked="" type="checkbox"/> Received for Lab Signed/Date/Time? <input type="checkbox"/> Shipping document? <input checked="" type="checkbox"/> Other: COC Information <input type="checkbox"/> TriMatrix COC <input checked="" type="checkbox"/> Other: <u>TETRO TECH</u> COC ID Numbers: <u>2289</u>	Check Sample Preservation N/A Yes No <input checked="" type="checkbox"/> Average sample temperature ≤ 6° C? <input type="checkbox"/> Was thermal preservation required? If "No", Project Chemist Approval Initials: _____ If "Yes" Completed Non Con Cooler - Cont Inventory Form? <input type="checkbox"/> Completed Sample Preservation Verification Form? <input checked="" type="checkbox"/> Samples chemically preserved correctly? If "No", added orange tag? <input checked="" type="checkbox"/> Received pre-preserved VOC soils? <input type="checkbox"/> MeOH <input type="checkbox"/> Na ₂ SO ₄
Check COC for Accuracy Yes No <input checked="" type="checkbox"/> Analysis Requested? <input checked="" type="checkbox"/> Sample ID matches COC? <input checked="" type="checkbox"/> Sample Date and Time matches COC? <input checked="" type="checkbox"/> Container type completed on COC? <input checked="" type="checkbox"/> All container types indicated are received?	Check for Short Hold-Time Prep/Analyses <input type="checkbox"/> Bacteriological <input type="checkbox"/> Air Bags <input type="checkbox"/> EnCores / Methanol Pre-Preserved <input type="checkbox"/> Formaldehyde/Alddehyde <input type="checkbox"/> Green-tagged containers <input type="checkbox"/> Yellow/White-tagged TL ambers (SV Prep-Lab)

Sample Condition Summary N/A Yes No <input checked="" type="checkbox"/> Broken containers/lids? <input checked="" type="checkbox"/> Missing or incomplete labels? <input checked="" type="checkbox"/> Illegible information on labels? <input checked="" type="checkbox"/> Low volume received? <input checked="" type="checkbox"/> Inappropriate or non-TriMatrix containers received? <input type="checkbox"/> VOC vials / TOX containers have headspace? <input type="checkbox"/> Extra sample locations / containers not listed on COC?	Notes <div style="font-size: 2em; font-family: cursive;">Rush</div> <input type="checkbox"/> Trip Blank received <input type="checkbox"/> Trip Blank not listed on COC Cooler Received (Date/Time) <u>DN 4-23-13</u> Paperwork Delivered (Date/Time) <u>4-23-13</u> S1 Hour Goal Met? <u>Yes / No</u>
--	---

BACKFILL AND SOIL CERTIFICATIONS

**TRI-CITY AGGREGATES, INC.**

A SUBSIDIARY OF GENOAK MATERIALS, INC.

P.O. Box 182

Holly, MI 48442

Phone (248) 634-8276 (Holly) or (810) 694-2840 (Flint)

Fax (248) 634-3301

April 09, 2013

TKMS
1780 E HIGHWOOD
PONTIAC MI 48340
RE: Class IIA Sand

To Whom It May Concern,

The Class IIA Sand that TKMS will be hauling from Tri-City Aggregates Inc.

will be loaded from:

Tri-City Aggregates Inc.
Pit# 2
14300 Shields Rd
Holly MI 48442
MDOT Pit# 63-094

All materials shipped from this location are from virgin ground and show no
evidence of contamination.

Thank You,

Scott A. McKay
General Manager

TRP Sand and Gravel

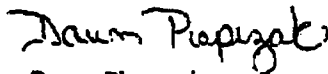
6267 St. Clair Highway, China Township Michigan 48054
Ph. 810.329.4027 Fax. 810.329.6359.

April 22, 2013

To Who To May Concern:

The **topsoil** that HM Environmental, 42826 North Walnut Street, Mt. Clemens, Michigan 48043 is delivering to you came from a borrow area that is clean from any contaminates.

Sincerely,



Dawn Pieprzak
TRP Sand and Gravel

E

[REDACTED]

[REDACTED]

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Appendix E

Laboratory Validation Reports

NOTE: PAPER COPIES CONTAIN DATA VALIDATION LETTERS ONLY.

ELECTRONIC COPIES HAVE COMPLETE DATA VALIDATION REPORTS.



Tetra Tech

INTERNAL CORRESPONDENCE

TO: J. LOGAN

FROM: A. COGNETTI

**SUBJECT: ORGANIC DATA VALIDATION- PAH
USCG ATWATER FACILITY
FULL REVIEW
SAMPLE DELIVERY GROUP (SDG) - 1304171**

DATE: MAY 17, 2013

COPIES: DV FILE

SAMPLES: 31/Soil/PAH

DASB-FD-01	DASB-FD-02	DASB-FD-03	DASB224-0507
DASB225-0507	DASB226-0507	DASB227-0507	DASB238-0305
DASB239-0305	DASB240-0305	DASB241-0305	DASB242-0305
DASB243-0305	DASS201-0002	DASS202-0002	DASS203-0002
DASS204-0002	DASS205-0002	DASS206-0002	DASS207-0002
DASS213-0002	DASS214-0002	DASS215-0002	DASS216-0002
DASS217-0002	DASS218-0002	DASS219-0002	DASS220-0002
DASS221-0002	DASS222-0002	DASS223-0002	

OVERVIEW

The sample set for USCG ATWATER FACILITY, SDG 1304171 consists of thirty-one (31) soil environmental samples. All samples were analyzed for polycyclic aromatic hydrocarbons (PAH). There are three field duplicates contained within this SDG: DASB241-03-5/DASB-FD-01, DASS222-0002/DASBFD-02 and DASS203-0002/DASB-FD-03.

The samples were collected on April 9, 10 and 11, 2013 and analyzed by TriMatrix Laboratories. All analyses were conducted in accordance with USEPA SW 846 Method 8270C for PAHs analytical and reporting protocol.

These data were evaluated based on the following parameters:

- * • Data Completeness
- Holding Times and Preservation
- * • Initial and Continuing Calibrations
- * • Laboratory Method Blank Analyses
- * • Surrogate Recoveries
- * • Laboratory Control Sample Results
- Matrix Spike / Matrix Spike Duplicate Results
- * • Internal Standard Results
- Field Duplicate Precision
- * • Detection Limits
- * • Analyte Quantitation

* - All quality control criteria were met for this parameter.

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in

TO: J. Logan
FROM: A. Cognetti
DATE: May 17, 2013
SDG: 1304171
PAGE: 2

Appendix B.

PAH

Nineteen samples in coolers numbers 1111596 and 1111222 arrived at the laboratory at 7.6°C and 6.2 °C, respectively. Positive and nondetected results were qualified as estimated (J) and (UJ), respectively.

The matrix spike (MS) percent recovery (%R) of benzo(b)fluoranthene, phenanthrene and pyrene were greater than the upper quality control limit in sample DASB238-0305. The matrix spike duplicate (MSD) and relative percent difference (RPDs) were within quality control limits. The positive benzo(b)fluoranthene, phenanthrene and pyrene results in sample DASB238-0305 were qualified as estimated (J).

The MS/MSD %Rs of benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and pyrene were greater than the upper quality control limit in sample DASS222-0002. In addition, the MS %Rs of benzo(a)anthracene and fluoranthene were greater than the upper quality control limit. The positive benzo(a)pyrene, benzo(b)fluoranthene, chrysene, pyrene, benzo(a)anthracene and fluoranthene were qualified as estimated (J) in sample DASS222-0002.

The MS/MSD %Rs of phenanthrene and pyrene were greater than the upper quality control limit in sample DASB227-0507. In addition, the MS %Rs of anthracene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene and fluoranthene were greater than the upper quality control limit. The positive anthracene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, fluoranthene, phenanthrene and pyrene results were qualified as estimated (J).

Field duplicate imprecision was noted in the field duplicate pair DASB241-0305 and DASB-FD-01 for several PAHs. The RPDs were greater than the 50% quality control limit for acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno (1,2,3-cde)pyrene, phenanthrene and pyrene. The positive results of the aforementioned analytes were qualified as estimated (J) in the field duplicate pair DASB241-0305 and DASB-FD-01.

Field duplicate imprecision was noted in the field duplicate pair DASS222-0002 and DASB-FD-02 for several PAHs. The RPDs were greater than the 50% quality control limit for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene and pyrene. In addition, the variance was greater than 2X the reporting limit for anthracene. The positive results of the aforementioned analytes were qualified as estimated (J) in the field duplicate pair DASS222-0002 and DASB-FD-02.

Field duplicate imprecision was noted in the field duplicate pair DASS203-0002 and DASB-FD-03 for several PAHs. The RPDs were greater than the 50% quality control limit for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene and pyrene. In addition, the variance was greater than 2X the reporting limit for anthracene, benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene. The positive results of the aforementioned analytes were qualified as estimated (J) in the field duplicate pair DASS203-0002 and DASB-FD-03.

TO: J. Logan
FROM: A. Cognetti
DATE: May 17, 2013
SDG: 1304171
PAGE: 3

Additional Comments:

Several samples were diluted for analysis resulting in elevated reporting limits.

<u>Sample</u>	<u>Dilution Factor</u>
DASB-FD-03	5X
DASB226-0507	5X
DASS201-0002	5X
DASS202-0002	5X
DASS203-0002	5X
DASS204-0002	5X
DASS205-0002	5X
DASS206-0002	5X
DASB-FD-02	10X
DASB240-0305	10X
DASB241-0305	10X
DASS213-0002	10X
DASS214-0002	10X
DASS215-0002	10X
DASS216-0002	10X
DASS218-0002	10X
DASS222-0002	10X
DASS223-0002	10X
DASB243-0305	20X
DASS219-0002	20X
DASS217-0002	50X

Positive results less than the reporting limit (RL) were qualified as estimated, J, due to uncertainty near the detection limit.

Nondetected results were reported to the reporting limit.

EXECUTIVE SUMMARY

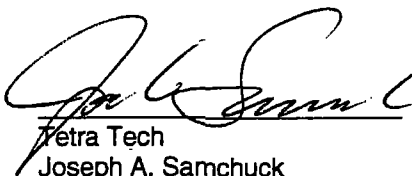
Laboratory Performance: None.

Other factors affecting data quality: Sample temperature noncompliance was noted affecting nineteen samples. Matrix spike/matrix spike duplicate percent recoveries did not meet quality control limits for samples DASB238-0305, DASS222-0002 and DASB227-0507 resulting in the qualification of data. Field duplicate imprecision was noted in all the field duplicate pairs.

TO: J. Logan
FROM: A. Cagnetti
DATE: May 17, 2013
SDG: 1304171
PAGE: 4

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (October 2010). The text of this report has been formulated to address only those problem areas affecting data quality.


Tetra Tech
Ann Cagnetti
Chemist/Data Validator


Tetra Tech
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $< CRQL$ for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $> 40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 02 SDG: 1304171 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASB224-0507			DASB225-0507			DASB226-0507			DASB227-0507		
	LAB_ID	1304185-08			1304185-09			1304185-10			1304185-11		
	SAMP_DATE	4/11/2013			4/11/2013			4/11/2013			4/11/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.0			79.0			76.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.02	U		0.021	U		0.11	U		0.013	J	P
ACENAPHTHENE		0.015	J	P	0.19			0.15			0.034		
ACENAPHTHYLENE		0.02	U		0.0061	J	P	0.11	U		0.012	J	P
ANTHRACENE		0.014	J	P	0.037			0.32			0.064	J	D
BENZO(A)ANTHRACENE		0.041			0.067			0.41			0.21	J	D
BENZO(A)PYRENE		0.033			0.066			0.3			0.18		
BENZO(B)FLUORANTHENE		0.039			0.071			0.34			0.22	J	D
BENZO(G,H,I)PERYLENE		0.02			0.034			0.16			0.084		
BENZO(K)FLUORANTHENE		0.019	J	P	0.037			0.17			0.12		
CHRYSENE		0.039			0.063			0.35			0.19	J	D
DIBENZO(A,H)ANTHRACENE		0.0037	J	P	0.007	J	P	0.038	J	P	0.019	J	P
FLUORANTHENE		0.067			0.13			0.98			0.33	J	D
FLUORENE		0.0069	J	P	0.068			0.11	J	P	0.051		
INDENO(1,2,3-CD)PYRENE		0.013	J	P	0.032			0.14			0.082		
NAPHTHALENE		0.02	U		0.018	J	P	0.04	J	P	0.016	J	P
PHENANTHRENE		0.058			0.09			0.5			0.23	J	D
PYRENE		0.081			0.15			0.97			0.4	J	D

PROJ_NO: 02435 SDG: 1304171 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASB238-0305			DASB239-0305			DASB240-0305			DASB241-0305		
	LAB_ID	1304171-01			1304171-02			1304171-03			1304171-04		
	SAMP_DATE	4/9/2013			4/9/2013			4/9/2013			4/9/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.0			82.0			82.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.02	UR	M	0.02	UR	M	0.2	UR	M	0.21	UR	M
ACENAPHTHENE		0.011	J	MP	0.07	J	M	0.13	J	MP	0.23	J	GM
ACENAPHTHYLENE		0.007	J	MP	0.02	UR	M	0.083	J	MP	0.21	UR	M
ANTHRACENE		0.015	J	MP	0.02	UR	M	0.53	J	M	0.57	J	GM
BENZO(A)ANTHRACENE		0.11	J	M	0.0062	J	MP	1.6	J	M	1.3	J	GM
BENZO(A)PYRENE		0.13	J	M	0.0086	J	MP	1.4	J	M	1.1	J	GM
BENZO(B)FLUORANTHENE		0.12	J	DM	0.0046	J	MP	1.5	J	M	1.2	J	GM
BENZO(G,H,I)PERYLENE		0.088	J	M	0.0029	J	MP	0.65	J	M	0.57	J	GM
BENZO(K)FLUORANTHENE		0.083	J	M	0.0046	J	MP	0.76	J	M	0.64	J	GM
CHRYSENE		0.1	J	M	0.0068	J	MP	1.6	J	M	1.3	J	GM
DIBENZO(A,H)ANTHRACENE		0.02	J	M	0.02	UR	M	0.15	J	MP	0.11	J	GMP
FLUORANTHENE		0.13	J	M	0.01	J	MP	2.9	J	M	2.3	J	GM
FLUORENE		0.0065	J	MP	0.02	UR	M	0.15	J	MP	0.26	J	GM
INDENO(1,2,3-CD)PYRENE		0.076	J	M	0.0033	J	MP	0.61	J	M	0.55	J	GM
NAPHTHALENE		0.02	UR	M	0.02	UR	M	0.2	UR	M	0.21	UR	M
PHENANTHRENE		0.066	J	DM	0.0091	J	MP	1.6	J	M	2.1	J	GM
PYRENE		0.19	J	DM	0.012	J	MP	2.9	J	M	3	J	GM

PROJ_NO: 02 SDG: 1304171 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASB242-0305			DASB243-0305			DASB-FD-01			DASB-FD-02		
	LAB_ID	1304171-05			1304171-06			1304171-07			1304171-19		
	SAMP_DATE	4/9/2013			4/9/2013			4/9/2013			4/10/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.0			81.0			81.0			84.0		
	DUP_OF							DASB241-0305			DASS222-0002		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.51	J	M	0.41	UR	M	0.02	J	MP	0.2	UR	M
ACENAPHTHENE		0.018	J	MP	0.85	J	M	0.065	J	GM	0.21	J	M
ACENAPHTHYLENE		0.02	UR	M	0.41	UR	M	0.023	J	M	0.058	J	MP
ANTHRACENE		0.031	J	M	2.4	J	M	0.16	J	GM	0.53	J	GM
BENZO(A)ANTHRACENE		0.033	J	M	4.5	J	M	0.56	J	GM	1.4	J	GM
BENZO(A)PYRENE		0.013	J	MP	4.2	J	M	0.34	J	GM	1.4	J	GM
BENZO(B)FLUORANTHENE		0.023	J	M	4	J	M	0.47	J	GM	1.6	J	GM
BENZO(G,H,I)PERYLENE		0.011	J	MP	2.6	J	M	0.2	J	GM	0.86	J	GM
BENZO(K)FLUORANTHENE		0.016	J	MP	2.2	J	M	0.23	J	GM	0.92	J	GM
CHRYSENE		0.033	J	M	4.5	J	M	0.39	J	GM	1.2	J	GM
DIBENZO(A,H)ANTHRACENE		0.0028	J	MP	0.42	J	M	0.044	J	GM	0.19	J	MP
FLUORANTHENE		0.098	J	M	8.7	J	M	0.74	J	GM	2.3	J	GM
FLUORENE		0.027	J	M	0.68	J	M	0.086	J	GM	0.19	J	MP
INDENO(1,2,3-CD)PYRENE		0.0073	J	MP	2	J	M	0.17	J	GM	0.76	J	GM
NAPHTHALENE		0.75	J	M	0.41	UR	M	0.017	J	MP	0.2	UR	M
PHENANTHRENE		0.1	J	M	6.9	J	M	0.68	J	GM	1.7	J	GM
PYRENE		0.1	J	M	11	J	M	0.85	J	GM	2.6	J	GM

PROJ_NO: 02435 SDG: 1304171 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASB-FD-03			DASS201-0002			DASS202-0002			DASS203-0002		
	LAB_ID	1304185-12			1304185-01			1304185-02			1304185-03		
	SAMP_DATE	4/11/2013			4/11/2013			4/11/2013			4/11/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.0			81.0			79.0			83.0		
	DUP_OF	DASS203-0002											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.1	U		0.1	U		0.037	J	P	0.1	U	
ACENAPHTHENE		0.064	J	P	0.1	U		0.26			0.1	U	
ACENAPHTHYLENE		0.046	J	P	0.1	U		0.11	U		0.1	U	
ANTHRACENE		0.47	J	G	0.055	J	P	0.68			0.093	J	GP
BENZO(A)ANTHRACENE		0.92	J	G	0.27			0.82			0.22	J	G
BENZO(A)PYRENE		0.63	J	G	0.23			0.64			0.2	J	G
BENZO(B)FLUORANTHENE		0.81	J	G	0.28			0.76			0.23	J	G
BENZO(G,H,I)PERYLENE		0.3	J	G	0.11			0.27			0.097	J	GP
BENZO(K)FLUORANTHENE		0.4	J	G	0.18			0.46			0.14	J	G
CHRYSENE		0.79	J	G	0.26			0.91			0.24	J	G
DIBENZO(A,H)ANTHRACENE		0.12			0.026	J	P	0.11			0.022	J	P
FLUORANTHENE		1.7	J	G	0.42			1.6			0.41	J	G
FLUORENE		0.12			0.028	J	P	0.37			0.1	U	
INDENO(1,2,3-CD)PYRENE		0.29	J	G	0.095	J	P	0.26			0.081	J	GP
NAPHTHALENE		0.1	U		0.1	U		0.052	J	P	0.1	U	
PHENANTHRENE		1.5	J	G	0.28			1.9			0.21	J	G
PYRENE		1.9	J	G	0.49			1.6			0.44	J	G

PROJ_NO: 02 SDG: 1304171 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASS204-0002			DASS205-0002			DASS206-0002			DASS207-0002		
	LAB_ID	1304185-04			1304185-05			1304185-06			1304185-07		
	SAMP_DATE	4/11/2013			4/11/2013			4/11/2013			4/11/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	79.0			82.0			78.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.11	U		0.081	J	P	0.11	U		0.0067	J	P
ACENAPHTHENE		0.11	U		0.23			0.035	J	P	0.016	J	P
ACENAPHTHYLENE		0.11	U		0.1	U		0.11	U		0.014	J	P
ANTHRACENE		0.078	J	P	0.51			0.18			0.057		
BENZO(A)ANTHRACENE		0.18			0.89			0.29			0.26		
BENZO(A)PYRENE		0.18			0.74			0.26			0.2		
BENZO(B)FLUORANTHENE		0.23			0.95			0.35			0.23		
BENZO(G,H,I)PERYLENE		0.11	J	P	0.35			0.13			0.093		
BENZO(K)FLUORANTHENE		0.11			0.5			0.21			0.12		
CHRYSENE		0.22			0.84			0.35			0.22		
DIBENZO(A,H)ANTHRACENE		0.021	J	P	0.084	J	P	0.055	J	P	0.025		
FLUORANTHENE		0.31			1.5			0.49			0.31		
FLUORENE		0.11	U		0.19			0.057	J	P	0.02		
INDENO(1,2,3-CD)PYRENE		0.088	J	P	0.32			0.1	J	P	0.089		
NAPHTHALENE		0.11	U		0.42			0.11	U		0.02	U	
PHENANTHRENE		0.17			1.5			0.41			0.2		
PYRENE		0.36			1.8			0.57			0.41		

PROJ_NO: 02435 SDG: 1304171 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASS213-0002			DASS214-0002			DASS215-0002			DASS216-0002		
	LAB_ID	1304171-08			1304171-09			1304171-10			1304171-11		
	SAMP_DATE	4/10/2013			4/10/2013			4/10/2013			4/10/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.0			79.0			90.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.19	UR	M	0.21	UR	M	0.19	UR	M	0.21	UR	M
ACENAPHTHENE		0.14	J	MP	0.21	UR	M	0.19	UR	M	0.21	UR	M
ACENAPHTHYLENE		0.089	J	MP	0.21	UR	M	0.19	UR	M	0.21	UR	M
ANTHRACENE		0.44	J	M	0.091	J	MP	0.17	J	MP	0.21	UR	M
BENZO(A)ANTHRACENE		1.1	J	M	0.31	J	M	0.24	J	M	0.18	J	MP
BENZO(A)PYRENE		1.2	J	M	0.38	J	M	0.25	J	M	0.2	J	MP
BENZO(B)FLUORANTHENE		1.3	J	M	0.58	J	M	0.26	J	M	0.17	J	MP
BENZO(G,H,I)PERYLENE		0.69	J	M	0.32	J	M	0.1	J	MP	0.12	J	MP
BENZO(K)FLUORANTHENE		0.9	J	M	0.4	J	M	0.21	J	M	0.15	J	MP
CHRYSENE		1.2	J	M	0.46	J	M	0.3	J	M	0.2	J	MP
DIBENZO(A,H)ANTHRACENE		0.25	J	M	0.1	J	MP	0.19	UR	M	0.21	UR	M
FLUORANTHENE		2.5	J	M	0.47	J	M	0.36	J	M	0.27	J	M
FLUORENE		0.12	J	MP	0.21	UR	M	0.19	UR	M	0.21	UR	M
INDENO(1,2,3-CD)PYRENE		0.61	J	M	0.25	J	M	0.19	UR	M	0.091	J	MP
NAPHTHALENE		0.085	J	MP	0.21	UR	M	0.19	UR	M	0.21	UR	M
PHENANTHRENE		1.9	J	M	0.26	J	M	0.24	J	M	0.11	J	MP
PYRENE		2.4	J	M	0.73	J	M	0.53	J	M	0.35	J	M

PROJ_NO: 02 SDG: 1304171 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASS217-0002			DASS218-0002			DASS219-0002			DASS220-0002		
	LAB_ID	1304171-12			1304171-13			1304171-14			1304171-15		
	SAMP_DATE	4/10/2013			4/10/2013			4/10/2013			4/10/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.0			85.0			79.0			88.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.96	UR	M	0.2	UR	M	0.42	UR	M	0.0068	J	MP
ACENAPHTHENE		0.96	UR	M	0.27	J	M	0.92	J	M	0.061	J	M
ACENAPHTHYLENE		0.96	UR	M	0.2	UR	M	0.42	UR	M	0.0068	J	MP
ANTHRACENE		0.48	J	MP	0.92	J	M	3.5	J	M	0.25	J	M
BENZO(A)ANTHRACENE		2	J	M	2	J	M	7	J	M	0.38	J	M
BENZO(A)PYRENE		2.1	J	M	1.8	J	M	5.6	J	M	0.27	J	M
BENZO(B)FLUORANTHENE		2.2	J	M	2.1	J	M	6.1	J	M	0.27	J	M
BENZO(G,H,I)PERYLENE		1.4	J	M	1.1	J	M	2.9	J	M	0.13	J	M
BENZO(K)FLUORANTHENE		1.2	J	M	1.1	J	M	4.7	J	M	0.16	J	M
CHRYSENE		2.1	J	M	2.1	J	M	6	J	M	0.29	J	M
DIBENZO(A,H)ANTHRACENE		0.28	J	MP	0.22	J	M	0.64	J	M	0.031	J	M
FLUORANTHENE		3.7	J	M	3.9	J	M	13	J	M	0.61	J	M
FLUORENE		0.96	UR	M	0.25	J	M	1.4	J	M	0.091	J	M
INDENO(1,2,3-CD)PYRENE		1	J	M	0.9	J	M	2.7	J	M	0.12	J	M
NAPHTHALENE		0.96	UR	M	0.2	UR	M	0.42	UR	M	0.019	UR	M
PHENANTHRENE		1.8	J	M	3	J	M	8.9	J	M	0.65	J	M
PYRENE		4.9	J	M	5	J	M	14	J	M	0.71	J	M

PROJ_NO: 02435 SDG: 1304171 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASS221-0002			DASS222-0002			DASS223-0002		
	LAB_ID	1304171-16			1304171-17			1304171-18		
	SAMP_DATE	4/10/2013			4/10/2013			4/10/2013		
	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	88.0			84.0			85.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.019	UR	M	0.2	UR	M	0.2	UR	M
ACENAPHTHENE		0.013	J	MP	0.2	UR	M	0.2	UR	M
ACENAPHTHYLENE		0.0054	J	MP	0.2	UR	M	0.2	UR	M
ANTHRACENE		0.036	J	M	0.12	J	GMP	0.22	J	M
BENZO(A)ANTHRACENE		0.11	J	M	0.6	J	DGM	1.4	J	M
BENZO(A)PYRENE		0.1	J	M	0.72	J	DGM	1.3	J	M
BENZO(B)FLUORANTHENE		0.11	J	M	0.78	J	DGM	1.6	J	M
BENZO(G,H,I)PERYLENE		0.086	J	M	0.44	J	GM	0.7	J	M
BENZO(K)FLUORANTHENE		0.084	J	M	0.45	J	GM	0.79	J	M
CHRYSENE		0.11	J	M	0.62	J	DGM	1.5	J	M
DIBENZO(A,H)ANTHRACENE		0.017	J	MP	0.097	J	MP	0.16	J	MP
FLUORANTHENE		0.19	J	M	0.89	J	DGM	2.4	J	M
FLUORENE		0.013	J	MP	0.2	UR	M	0.2	UR	M
INDENO(1,2,3-CD)PYRENE		0.051	J	M	0.37	J	GM	0.63	J	M
NAPHTHALENE		0.019	UR	M	0.2	UR	M	0.2	UR	M
PHENANTHRENE		0.13	J	M	0.37	J	GM	0.21	J	M
PYRENE		0.22	J	M	1.1	J	DGM	2.4	J	M

Tetra Tech

INTERNAL CORRESPONDENCE

TO: J. LOGAN

DATE: May 17, 2013

FROM: MEGAN CARSON

COPIES: DV FILE

**SUBJECT: INORGANIC DATA VALIDATION –ARSENIC AND LEAD
USCG ATWATER FACILITY
SAMPLE DELIVERY GROUP (SDG) – 1304171**

SAMPLES:	31/Soil/		
	DASB-FD-01	DASB-FD-02	DASB-FD-03
	DASB224-0507	DASB225-0507	DASB226-0507
	DASB227-0507	DASB238-0305	DASB239-0305
	DASB240-0305	DASB241-0305	DASB242-0305
	DASB243-0305	DASS201-0002	DASS202-0002
	DASS203-0002	DASS204-0002	DASS205-0002
	DASS206-0002	DASS207-0002	DASS213-0002
	DASS214-0002	DASS215-0002	DASS216-0002
	DASS217-0002	DASS218-0002	DASS219-0002
	DASS220-0002	DASS221-0002	DASS222-0002
	DASS223-0002		

Overview

The sample set for USCG Atwater Facility, SDG 1304171 consists of thirty one (31) soil environmental samples. This SDG contained three field duplicate pairs: DASB-FD-01/DASB241-0305, DASB-FD-02/DASS222-0002, and DASB-FD-03/DASS203-0002.

All samples were analyzed for arsenic and lead. The samples were collected by TetraTech on April 9th, 10th, and 11th, 2013 and analyzed by TriMatrix Laboratories Inc. Metals analyses were conducted using method 6020A. The data contained in this SDG were validated with regard to the following parameters:

- * • Data Completeness
- * • Holding Times
- * • Instrument performance and tuning
- * • Initial and Continuing Calibrations
- * • Laboratory Method Blank Analyses
- * • Surrogate Recoveries
- * • Internal Standard Recoveries
- * • Field Duplicate Precision
- * • Laboratory Control Sample (LCS) Results
- * • Matrix Spike/ Matrix Spike Duplicate (MS/MSD) Results
- * • Detection Limits
- * • Analyte Quantitation

* - Quality control criteria were met for this parameter.

Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

METALS:

The matrix spike duplicate for preparation batch 1303272 had a percent recovery > 120% for arsenic. The recoveries for the MS, post-digestion spike (PDS), and LCS were within QC limits. The positive arsenic result for sample DASS222-0002 was qualified as estimated (J).

Notes:

The following contaminant was detected in the calibration blank at the following maximum concentration:

<u>Analyte</u>	<u>Maximum Concentration</u>	<u>Action Level</u>
Lead	0.00016 mg/L	0.08 mg/kg

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot, percent solids, and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results less than the blank action level were raised to the reporting limit and were qualified as non-detected (U).

Internal standard recoveries were not listed on a summary form. The validator verified that all recoveries met the 70%-120% acceptance criteria with the raw data.

Sample DASS220-0002 was re-digested for lead because the initial concentration reported by the laboratory was higher than previous sampling data. Additionally the project manager requested the re-check of the sample result because the x-ray fluorescence (XRF) measurement of the sample was approximately 22 mg/kg. The re-digestion and re-analysis sample concentration for lead was comparable (at 13 mg/kg) to XRF data. The re-analysis data was used for validation.

Results were reported on a dry weight basis.

Executive Summary

Laboratory Performance: None.

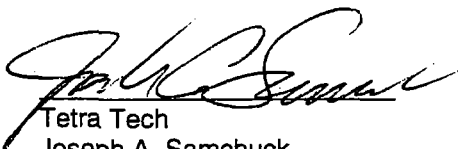
Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for "National Functional Guidelines for Inorganic Data Validation", October 2004, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", October 2010.

The text of this report has been formulated to address only those problem areas affecting data quality.



Tetra Tech
Megan Carson
Chemist/Data Validator



Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times \text{IDL}$ for inorganics and $< \text{CRQL}$ for organics)
Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- Q = etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $> 40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 sigma deviation is less than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02435 SDG: 1304171 FRACTION: M MEDIA: SOIL	NSAMPLE	DASB224-0507			DASB225-0507			DASB226-0507			DASB227-0507		
	LAB_ID	1304185-08			1304185-09			1304185-10			1304185-11		
	SAMP_DATE	4/11/2013			4/11/2013			4/11/2013			4/11/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.0			79.0			76.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		5.1			2.6			4.2			5.9		
LEAD		63			31			35			72		

PROJ_NO: 02 SDG: 1304171 FRACTION: M MEDIA: SOIL	NSAMPLE	DASB238-0305			DASB239-0305			DASB240-0305			DASB241-0305		
	LAB_ID	1304171-01			1304171-02			1304171-03			1304171-04		
	SAMP_DATE	4/9/2013			4/9/2013			4/9/2013			4/9/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.0			82.0			82.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		4.5			5.5			7.2			7.7		
LEAD		56			13			120			320		

PROJ_NO: 02435 SDG: 1304171 FRACTION: M MEDIA: SOIL	NSAMPLE	DASB242-0305			DASB243-0305			DASB-FD-01			DASB-FD-02		
	LAB_ID	1304171-05			1304171-06			1304171-07			1304171-19		
	SAMP_DATE	4/9/2013			4/9/2013			4/9/2013			4/10/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	85.0			81.0			81.0			84.0		
	DUP_OF							DASB241-0305			DASS222-0002		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		7			6.2			8			4.8		
LEAD		18			38			270			470		

PROJ_NO: 02 SDG: 1304171 FRACTION: M MEDIA: SOIL	NSAMPLE	DASB-FD-03			DASS201-0002			DASS202-0002			DASS203-0002		
	LAB_ID	1304185-12			1304185-01			1304185-02			1304185-03		
	SAMP_DATE	4/11/2013			4/11/2013			4/11/2013			4/11/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	83.0			81.0			79.0			83.0		
	DUP_OF	DASS203-0002											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		5.3			6.7			6.3			5.2		
LEAD		29			66			39			29		

PROJ_NO: 02435 SDG: 1304171 FRACTION: M MEDIA: SOIL	NSAMPLE	DASS204-0002			DASS205-0002			DASS206-0002			DASS207-0002		
	LAB_ID	1304185-04			1304185-05			1304185-06			1304185-07		
	SAMP_DATE	4/11/2013			4/11/2013			4/11/2013			4/11/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	79.0			82.0			78.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		6.2			6.1			8.9			6.1		
LEAD		40			21			410			99		

PROJ_NO: 02 SDG: 1304171 FRACTION: M MEDIA: SOIL	NSAMPLE	DASS213-0002			DASS214-0002			DASS215-0002			DASS216-0002		
	LAB_ID	1304171-08			1304171-09			1304171-10			1304171-11		
	SAMP_DATE	4/10/2013			4/10/2013			4/10/2013			4/10/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.0			79.0			90.0			81.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		8.3			8.7			7.2			6.8		
LEAD		720			290			370			180		

PROJ_NO: 02435 SDG: 1304171 FRACTION: M MEDIA: SOIL	NSAMPLE	DASS217-0002			DASS218-0002			DASS219-0002			DASS220-0002		
	LAB_ID	1304171-12			1304171-13			1304171-14			1304171-15		
	SAMP_DATE	4/10/2013			4/10/2013			4/10/2013			4/10/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.0			85.0			79.0			88.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		9			9.2			6			18		
LEAD		530			660			270					

PROJ_NO: 02 SDG: 1304171 FRACTION: M MEDIA: SOIL	NSAMPLE	DASS220-0002RE			DASS221-0002			DASS222-0002			DASS223-0002		
	LAB_ID	1304171-15			1304171-16			1304171-17			1304171-18		
	SAMP_DATE	4/10/2013			4/10/2013			4/10/2013			4/10/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	88.0			88.0			84.0			85.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC					5.1			5.9	J	D	4.2		
LEAD		13			35			720			16		

TO: J. LOGAN **DATE:** MAY 13, 2013

FROM: A. COGNETTI **COPIES:** DV FILE

SUBJECT: ORGANIC DATA VALIDATION – PAH
USCG ATWATER FACILITY
SAMPLE DELIVERY GROUP (SDG) - 1304208

SAMPLES: 17/Solid/PAH

DASB228-0305	DASB229-0305	DASB230-0305	DASB231-0305
DASB232-0305	DASB233-0305	DASB234-0305	DASB235-0305
DASB236-0305	DASB237-0305	DASBFD-04	DASBFD-05
DASS208-0002	DASS209-0002	DASS210-0002	DASS211-0002
DASS212-0002			

OVERVIEW

The sample set for USCG Atwater Facility, SDG 1304208 consists of seventeen (17) soil environmental samples. The samples were analyzed for polynuclear aromatic hydrocarbons (PAHs). There are two (2) field duplicate pairs included within this SDG: DASBFD-04/DA-SB-229-0305 and DASBFD-05/DA-SB-231-0305.

The samples were collected by Tetra Tech on April 11 and 12, 2013 and analyzed by TriMatrix Laboratories. USEPA SW 846 Method 8270C for PAHs analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

- Data Completeness
- * • Holding Times
- * • GC/MS Tuning
- * • Initial and Continuing Calibrations
- * • Laboratory Blank Analyses
- * • Surrogate Recoveries
- * • Laboratory Control Sample Results
- * • Matrix Spike / Matrix Spike Duplicate Results
- * • Internal Standard Recoveries
- * • Field Duplicate Precision
- * • Analyte Quantitation
- * • Analyte Identification
- * • Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

Additional Comments:

The nondetected results were reported to the laboratory reporting limit

Positive results less than the reporting limit (RL) were qualified as estimated, J, due to uncertainty near the detection limit.

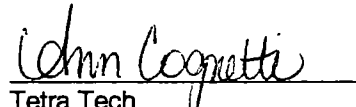
TO: J. Logan
FROM: A. Cognetti
SDG: 1304208
DATE: May 13, 2013
PAGE 2

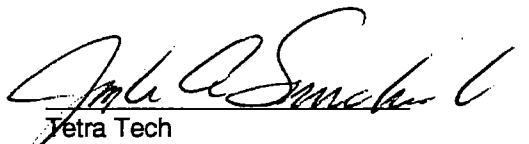
EXECUTIVE SUMMARY

Laboratory Performance Issues: None.

Other factors affecting data quality: Positive results less than the reporting limit (RL) were qualified as estimated, J, due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (October 2010). The text of this report has been formulated to address only those problem areas affecting data quality.


Tetra Tech
Ann Cognetti
Chemist/Data Validator


Tetra Tech
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

PROJ_NO: 02 SDG: 1304208 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASB228-0305			DASB229-0305			DASB230-0305			DASB231-0305		
	LAB_ID	1304208-01			1304208-02			1304208-03			1304208-04		
	SAMP_DATE	4/11/2013			4/11/2013			4/11/2013			4/11/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.0			90.0			86.0			86.0		
DUP_OF													
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.019	U		0.018	U		0.02	U		0.019	U	
ACENAPHTHENE		0.019	U		0.018	U		0.02	U		0.019	U	
ACENAPHTHYLENE		0.019	U		0.018	U		0.02	U		0.019	U	
ANTHRACENE		0.019	U		0.018	U		0.02	U		0.019	U	
BENZO(A)ANTHRACENE		0.0036	J	P	0.0038	J	P	0.02	U		0.019	U	
BENZO(A)PYRENE		0.019	U		0.0034	J	P	0.02	U		0.019	U	
BENZO(B)FLUORANTHENE		0.0032	J	P	0.0038	J	P	0.02	U		0.0023	J	P
BENZO(G,H,I)PERYLENE		0.0036	J	P	0.0042	J	P	0.0028	J	P	0.0034	J	P
BENZO(K)FLUORANTHENE		0.019	U		0.018	U		0.02	U		0.019	U	
CHRYSENE		0.0052	J	P	0.018	U		0.02	U		0.0045	J	P
DIBENZO(A,H)ANTHRACENE		0.019	U		0.018	U		0.02	U		0.019	U	
FLUORANTHENE		0.0068	J	P	0.0081	J	P	0.02	U		0.019	U	
FLUORENE		0.019	U		0.018	U		0.02	U		0.019	U	
INDENO(1,2,3-CD)PYRENE		0.019	U		0.018	U		0.02	U		0.019	U	
NAPHTHALENE		0.019	U		0.018	U		0.02	U		0.019	U	
PHENANTHRENE		0.0052	J	P	0.0053	J	P	0.02	U		0.019	U	
PYRENE		0.008	J	P	0.008	J	P	0.02	U		0.0057	J	P

PROJ_NO: 02435 SDG: 1304208 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASB232-0305			DASB233-0305			DASB234-0305			DASB235-0305		
	LAB_ID	1304212-06			1304212-07			1304212-08			1304212-09		
	SAMP_DATE	4/12/2013			4/12/2013			4/12/2013			4/12/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.0			85.0			52.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.019	U		0.02	U		0.12	J	P	0.23	U	
ACENAPHTHENE		0.019	U		0.02	U		0.26	J	P	0.11	J	P
ACENAPHTHYLENE		0.019	U		0.02	U		0.16	J	P	0.092	J	P
ANTHRACENE		0.019	U		0.02	U		0.81			0.46		
BENZO(A)ANTHRACENE		0.019	U		0.011	J	P	5.9			1.5		
BENZO(A)PYRENE		0.019	U		0.011	J	P	5.7			1.3		
BENZO(B)FLUORANTHENE		0.0024	J	P	0.0097	J	P	6.6			1.8		
BENZO(G,H,I)PERYLENE		0.0051	J	P	0.0081	J	P	2.8			0.87		
BENZO(K)FLUORANTHENE		0.019	U		0.0077	J	P	3.6			1		
CHRYSENE		0.019	U		0.014	J	P	5.8			1.4		
DIBENZO(A,H)ANTHRACENE		0.019	U		0.02	U		0.66			0.42		
FLUORANTHENE		0.019	U		0.015	J	P	5			2.7		
FLUORENE		0.019	U		0.02	U		0.35			0.12	J	P
INDENO(1,2,3-CD)PYRENE		0.019	U		0.0041	J	P	2.7			0.82		
NAPHTHALENE		0.019	U		0.02	U		0.24	J	P	0.23	U	
PHENANTHRENE		0.019	U		0.011	J	P	2.4			1.7		
PYRENE		0.019	U		0.018	J	P	9.2			2.5		

PROJ_NO: 02 SDG: 1304208 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASB236-0305			DASB237-0305			DASBFD-04			DASBFD-05		
	LAB_ID	1304212-10			1304212-11			1304208-05			1304208-06		
	SAMP_DATE	4/12/2013			4/12/2013			4/12/2013			4/12/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.0			81.0			88.0			87.0		
	DUP_OF							DA-SB-229-0305			DA-SB-231-0305		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.02	U		0.021	U		0.019	U		0.019	U	
ACENAPHTHENE		0.015	J	P	0.021	U		0.019	U		0.019	U	
ACENAPHTHYLENE		0.02	U		0.021	U		0.019	U		0.019	U	
ANTHRACENE		0.037			0.021	U		0.019	U		0.019	U	
BENZO(A)ANTHRACENE		0.11			0.0058	J	P	0.019	U		0.004	J	P
BENZO(A)PYRENE		0.1			0.0037	J	P	0.019	U		0.0028	J	P
BENZO(B)FLUORANTHENE		0.11			0.0058	J	P	0.019	U		0.0024	J	P
BENZO(G,H,I)PERYLENE		0.057			0.0025	J	P	0.0044	J	P	0.0044	J	P
BENZO(K)FLUORANTHENE		0.081			0.0025	J	P	0.019	U		0.0028	J	P
CHRYSENE		0.11			0.0049	J	P	0.019	U		0.0052	J	P
DIBENZO(A,H)ANTHRACENE		0.019	J	P	0.021	U		0.019	U		0.019	U	
FLUORANTHENE		0.21			0.0099	J	P	0.019	U		0.006	J	P
FLUORENE		0.011	J	P	0.021	U		0.019	U		0.019	U	
INDENO(1,2,3-CD)PYRENE		0.049			0.021	U		0.019	U		0.019	U	
NAPHTHALENE		0.02	U		0.021	U		0.019	U		0.019	U	
PHENANTHRENE		0.12			0.0074	J	P	0.019	U		0.019	U	
PYRENE		0.22			0.01	J	P	0.019	U		0.0084	J	P

PROJ_NO: 02435 SDG: 1304208 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASS208-0002			DASS209-0002			DASS210-0002			DASS211-0002		
	LAB_ID	1304212-01			1304212-02			1304212-03			1304212-04		
	SAMP_DATE	4/12/2013			4/12/2013			4/12/2013			4/12/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.0			81.0			88.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.096	U		0.034	J	P	0.019	U		0.099	U	
ACENAPHTHENE		0.033	J	P	0.079			0.019	U		0.099	U	
ACENAPHTHYLENE		0.096	U		0.017	J	P	0.019	U		0.099	U	
ANTHRACENE		0.089	J	P	0.18			0.019	U		0.099	U	
BENZO(A)ANTHRACENE		0.32			0.63			0.019	U		0.052	J	P
BENZO(A)PYRENE		0.27			0.57			0.019	U		0.068	J	P
BENZO(B)FLUORANTHENE		0.32			0.65			0.019	U		0.049	J	P
BENZO(G,H,I)PERYLENE		0.16			0.34			0.019	U		0.039	J	P
BENZO(K)FLUORANTHENE		0.14			0.38			0.019	U		0.039	J	P
CHRYSENE		0.29			0.65			0.019	U		0.052	J	P
DIBENZO(A,H)ANTHRACENE		0.031	J	P	0.12			0.019	U		0.099	U	
FLUORANTHENE		0.43			0.99			0.019	U		0.07	J	P
FLUORENE		0.033	J	P	0.068			0.019	U		0.099	U	
INDENO(1,2,3-CD)PYRENE		0.12			0.31			0.019	U		0.039	J	P
NAPHTHALENE		0.096	U		0.03	J	P	0.019	U		0.099	U	
PHENANTHRENE		0.32			0.84			0.019	U		0.049	J	P
PYRENE		0.61			1.1			0.019	U		0.11		

PROJ_NO: 02 SDG: 1304208 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASS212-0002		
	LAB_ID	1304212-05		
	SAMP_DATE	4/12/2013		
	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	80.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.013	J	P
ACENAPHTHENE		0.21		
ACENAPHTHYLENE		0.013	J	P
ANTHRACENE		0.1		
BENZO(A)ANTHRACENE		0.36		
BENZO(A)PYRENE		0.26		
BENZO(B)FLUORANTHENE		0.33		
BENZO(G,H,I)PERYLENE		0.091		
BENZO(K)FLUORANTHENE		0.17		
CHRYSENE		0.35		
DIBENZO(A,H)ANTHRACENE		0.027		
FLUORANTHENE		0.51		
FLUORENE		0.14		
INDENO(1,2,3-CD)PYRENE		0.11		
NAPHTHALENE		0.024		
PHENANTHRENE		0.45		
PYRENE		0.7		



Tetra Tech

INTERNAL CORRESPONDENCE

TO: J. LOGAN **DATE: May 17, 2013**

FROM: MEGAN CARSON **COPIES: DV FILE**

**SUBJECT: INORGANIC DATA VALIDATION –ARSENIC AND LEAD
USCG ATWATER FACILITY
SAMPLE DELIVERY GROUP (SDG) – 1304208**

SAMPLES: 17/Soil/
DASB228-0305 DASB229-0305 DASB230-0305
DASB231-0305 DASB232-0305 DASB233-0305
DASB234-0305 DASB235-0305 DASB236-0305
DASB237-0305 DASBFD-04 DASBFD-05
DASS208-0002 DASS209-0002 DASS210-0002
DASS211-0002 DASS212-0002

Overview

The sample set for USCG Atwater Facility, SDG 1304208 consists of seventeen (17) soil environmental samples. This SDG contained two field duplicate pairs: DASBFD-04/DASB229-0305 and DASBFD-05/DASB231-0305.

All samples were analyzed for arsenic and lead. The samples were collected by TetraTech on April 11th and 12th, 2013 and analyzed by TriMatrix Laboratories Inc. Metals analyses were conducted using method 6020A. The data contained in this SDG were validated with regard to the following parameters:

- * • Data Completeness
 - * • Holding Times
 - * • Instrument performance and tuning
 - * • Initial and Continuing Calibrations
 - * • Laboratory Method Blank Analyses
 - * • Internal Standard Recoveries
 - * • Field Duplicate Precision
 - * • Laboratory Control Sample Results
 - * • Matrix Spike/ Matrix Spike Duplicate Results
 - * • Detection Limits
 - * • Analyte Quantitation
- * - Quality control criteria were met for this parameter.

Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

METALS:

All sample results were considered acceptable as all quality control criteria were met.

Notes:

Internal standard recoveries were not listed on a summary form. The validator verified that all recoveries met acceptance criteria (70-120%) in the raw data.

Sample results were reported on a dry weight basis.

Executive Summary

Laboratory Performance: None.

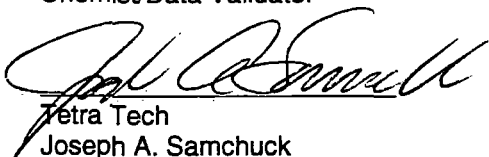
Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for "National Functional Guidelines for Inorganic Data Validation", October 2004, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", October 2010.

The text of this report has been formulated to address only those problem areas affecting data quality.



Tetra Tech
Megan Carson
Chemist/Data Validator



Tetra Tech
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times \text{IDL}$ for inorganics and $< \text{CRQL}$ for organics)
Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- Q = etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $> 40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 sigma deviation is less than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02435 SDG: 1304208 FRACTION: M MEDIA: SOIL	NSAMPLE	DASB228-0305			DASB229-0305			DASB230-0305			DASB231-0305		
	LAB_ID	1304208-01			1304208-02			1304208-03			1304208-04		
	SAMP_DATE	4/11/2013			4/11/2013			4/11/2013			4/11/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.0			90.0			86.0			86.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		5.1			6.1			4.3			5.1		
LEAD		6.9			6.5			6.9			7.5		

PROJ_NO: 02483 SDG: 1304208 FRACTION: M MEDIA: SOIL	NSAMPLE	DASB232-0305			DASB233-0305			DASB234-0305			DASB235-0305		
	LAB_ID	1304212-06			1304212-07			1304212-08			1304212-09		
	SAMP_DATE	4/12/2013			4/12/2013			4/12/2013			4/12/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.0			85.0			52.0			72.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		6.1			5.8			6.6			38		
LEAD		7			16			220			1800		

PROJ_NO: 02435 SDG: 1304208 FRACTION: M MEDIA: SOIL	NSAMPLE	DASB236-0305			DASB237-0305			DASBFD-04			DASBFD-05		
	LAB_ID	1304212-10			1304212-11			1304208-05			1304208-06		
	SAMP_DATE	4/12/2013			4/12/2013			4/12/2013			4/12/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	86.0			81.0			88.0			87.0		
	DUP_OF							DASB229-0305			DASB231-0305		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		4.9			2.5			5.6			5		
LEAD		26			31			7.1			9.2		

PROJ_NO: 02455 SDG: 1304208 FRACTION: M MEDIA: SOIL	NSAMPLE	DASS208-0002			DASS209-0002			DASS210-0002			DASS211-0002		
	LAB_ID	1304212-01			1304212-02			1304212-03			1304212-04		
	SAMP_DATE	4/12/2013			4/12/2013			4/12/2013			4/12/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.0			81.0			88.0			84.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		7.7			11			2.3			5.8		
LEAD		340			510			2.7			43		

PROJ_NO: 02435 SDG: 1304208 FRACTION: M MEDIA: SOIL	NSAMPLE	DASS212-0002		
	LAB_ID	1304212-05		
	SAMP_DATE	4/12/2013		
	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	80.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
ARSENIC		5.4		
LEAD		220		



Tetra Tech

INTERNAL CORRESPONDENCE

TO: J. LOGAN **DATE:** MAY 14, 2013

FROM: A. COGNETTI **COPIES:** DV FILE

SUBJECT: ORGANIC AND INORGANIC DATA VALIDATION – PAH / METALS / PERCENT SOLIDS
USCG ATWATER FACILITY
SAMPLE DELIVERY GROUP (SDG) - 1304314

SAMPLES: 3/Soil/PAH/ Percent Solids

DASS244-0002	DASS245-0002	DASS246-0002
--------------	--------------	--------------

5/Soil/Metals

DASB-CF-1	DASB-CF-2	DASS244-0002	DASS245-0002
DASS246-0002			

OVERVIEW

The sample set for USCG Atwater Facility, SDG 1304314 consists of three (3) soil environmental samples analyzed for polynuclear aromatic hydrocarbons (PAHs) and percent solids. Five (5) soil environmental samples were also analyzed for the select total metals arsenic and lead. No field duplicate pair is included within this SDG.

The samples were collected by Tetra Tech on April 17, 2013 and analyzed by TriMatrix Laboratories. USEPA SW 846 Method 8270C for PAHs and 6020A for metals analytical and reporting protocols were used. The data contained in this SDG were validated with regard to the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC/MS Tuning
- * • Initial and Continuing Calibrations
- * • Laboratory Blank Analyses
- * • Surrogate Recoveries
- * • Laboratory Control Sample Results
 - Matrix Spike / Matrix Spike Duplicate Results
- * • Internal Standard Recoveries
- * • ICP Interference Analysis
- * • ICP Serial Dilution Results
- * • Analyte Quantitation
- * • Analyte Identification
- * • Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

PAHs

The matrix spike (MS) percent recovery (%R) of fluoranthene was less than the lower quality control limit in sample DASS244-0002. The detected result for fluoranthene was qualified as estimated (J).

TO: J. Logan
FROM: A. Cagnetti
SDG: 1304314
DATE: May 14, 2013
PAGE 2

The matrix spike duplicate (MSD) %Rs were low in sample DASS245-0002 for anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene and pyrene. In addition, the relative percent differences (RPDs) for benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene and pyrene were greater than the 30% quality control limit. All of the compounds referenced above were detected in the unspiked sample. Additionally, all compounds except for anthracene and indeno(1,2,3-cd)pyrene were detected at concentrations in the unspiked sample greater than the spiked concentration. Detected results for anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene and pyrene were qualified as estimated (J) in sample DASS245-0002.

The MSD %Rs of benzo(a)pyrene and benzo(b)fluoranthene were greater than the upper quality control limit in sample DASS246-0002. Detected results for benzo(a)pyrene and benzo(b)fluoranthene were qualified as estimated (J) in sample DASS246-0002.

Additional Comments:

The following contaminants were detected in the continuing calibration blanks at the following maximum concentrations:

Analyte	Maximum Concentration (mg/L)	Action Level (mg/kg)
Lead ⁽¹⁾	0.000081	0.0405
Arsenic ⁽²⁾	0.00039	0.195

(1) Maximum concentration detected in the continuing calibration blank (CCB 3) analyzed on April 22, 2013 @ 9:19.

(2) Maximum concentration detected in continuing calibration blank analyzed on April 22, 2013 @ 12:43.

An action level of 5X the maximum concentration has been established in order to evaluate sample data for blank contamination. Sample aliquot, percent solids and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. No action was taken because the sample results were greater than the action level.

The MSD %R of arsenic was greater than the upper quality control limit in sample DASS244-0002. The MS %R and RPD were within quality control limits. The arsenic MS/MSD %Rs and RPDs were within quality control limits in samples DASS245-0002 and DASS246-0002. No action was taken.

Samples were analyzed at a dilution in the PAH fraction resulting in elevated nondetected reporting limits.

Sample	Dilution Factor
DASS244-0002	20X
DASS245-0002	10X
DASS246-0002	10X

The nondetected results were reported to the laboratory reporting limit

Positive results less than the reporting limit (RL) were qualified as estimated, J, due to uncertainty near the detection limit.

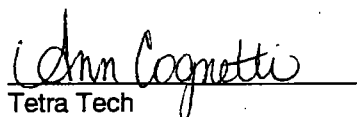
TO: J. Logan
FROM: A. Cognetti
SDG: 1304314
DATE: May 14, 2013
PAGE 3

EXECUTIVE SUMMARY

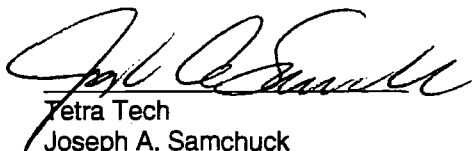
Laboratory Performance Issues: None.

Other factors affecting data quality: MS/MSD recovery noncompliances resulted in the qualification several PAH results. Positive results less than the reporting limit (RL) were qualified as estimated, J, due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999), EPA Functional Guidelines for Inorganic Data Review (October 2004), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (October 2010). The text of this report has been formulated to address only those problem areas affecting data quality.



Tetra Tech
Ann Cognetti
Chemist/Data Validator



Tetra Tech
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $< CRQL$ for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $> 40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 02435 SDG: 1304314 FRACTION: M MEDIA: SOIL	NSAMPLE	DASB-CF-01			DASB-CF-02			DASS244-0002			DASS245-0002		
	LAB_ID	1304314-04			1304314-05			1304314-01			1304314-02		
	SAMP_DATE	4/17/2013			4/17/2013			4/17/2013			4/17/2013		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	100.0			100.0			88.0			83.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		3.3			3.6			6.3			9.4		
LEAD		3.4			3.6			430			620		

PROJ_NO: 02 SDG: 1304314 FRACTION: M MEDIA: SOIL	NSAMPLE	DASS246-0002		
	LAB_ID	1304314-03		
	SAMP_DATE	4/17/2013		
	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	83.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
ARSENIC		5.6		
LEAD		52		

PROJ_NO: 02435 SDG: 1304314 FRACTION: MISC MEDIA: SOIL	NSAMPLE	DASS244-0002			DASS245-0002			DASS246-0002		
	LAB_ID	1304314-01			1304314-02			1304314-03		
	SAMP_DATE	4/17/2013			4/17/2013			4/17/2013		
	QC_TYPE	NM			NM			NM		
	UNITS	%			%			%		
	PCT_SOLIDS	88.0			83.0			83.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCENT SOLIDS		88			83			83		

PROJ_NO: 02 SDG: 1304314 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASS244-0002			DASS245-0002			DASS246-0002		
	LAB_ID	1304314-01			1304314-02			1304314-03		
	SAMP_DATE	4/17/2013			4/17/2013			4/17/2013		
	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	88.0			83.0			83.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.38	U		0.2	U		0.2	U	
ACENAPHTHENE		0.38	U		0.084	J	P	0.2	U	
ACENAPHTHYLENE		0.38	U		0.2	U		0.2	U	
ANTHRACENE		0.38	U		0.2	J	DP	0.2	U	
BENZO(A)ANTHRACENE		0.15	J	P	0.51	J	D	0.13	J	P
BENZO(A)PYRENE		0.14	J	P	0.47	J	D	0.095	J	DP
BENZO(B)FLUORANTHENE		0.17	J	P	0.59	J	D	0.14	J	DP
BENZO(G,H,I)PERYLENE		0.083	J	P	0.14	J	P	0.046	J	P
BENZO(K)FLUORANTHENE		0.11	J	P	0.29			0.079	J	P
CHRYSENE		0.15	J	P	0.39			0.099	J	P
DIBENZO(A,H)ANTHRACENE		0.38	U		0.2	U		0.2	U	
FLUORANTHENE		0.26	J	DP	1	J	D	0.18	J	P
FLUORENE		0.38	U		0.1	J	P	0.2	U	
INDENO(1,2,3-CD)PYRENE		0.38	U		0.22	J	D	0.13	J	P
NAPHTHALENE		0.38	U		0.2	U		0.2	U	
PHENANTHRENE		0.11	J	P	0.83	J	D	0.12	J	P
PYRENE		0.22	J	P	0.78	J	D	0.15	J	P



Tetra Tech

INTERNAL CORRESPONDENCE

TO: J. LOGAN **DATE: MAY 14, 2013**

FROM: A. COGNETTI **COPIES: DV FILE**

**SUBJECT: ORGANIC AND INORGANIC DATA VALIDATION – PAH / METALS / PERCENT SOLIDS
USCG ATWATER FACILITY
SAMPLE DELIVERY GROUP (SDG) - 1304363**

SAMPLES: 1/Soil/PAH/Percent Solids
DASB-CF-04
2/Soil/Metals
DASB-CF-03 DASB-CF-04

OVERVIEW

The sample set for USCG Atwater Facility, SDG 1304363 consists of one (1) soil environmental sample analyzed for polynuclear aromatic hydrocarbons (PAHs) and percent solids. Two (2) soil environmental samples were also analyzed for the select metals arsenic and lead. No field duplicate pair is included within this SDG.

The samples were collected by Tetra Tech on April 19 and 23, 2013 and analyzed by TriMatrix Laboratories. USEPA SW 846 Method 8270C for PAHs and 6020A for metals and 3550C for percent solids analytical and reporting protocols were used. The data contained in this SDG were validated with regard to the following parameters:

- * • Data Completeness
- * • Holding Times
- * • GC/MS Tuning
- * • Initial and Continuing Calibrations
- * • Laboratory Blank Analyses
- * • Surrogate Recoveries
- * • Laboratory Control Sample Results
- * • Matrix Spike / Matrix Spike Duplicate Results
- * • Internal Standard Recoveries
- * • ICP Interference Analysis
- * • ICP Serial Dilution Results
- * • Analyte Quantitation
- * • Analyte Identification
- * • Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

TO: J. Logan
FROM: A. Cagnetti
SDG: 1304363
DATE: May 14, 2013
PAGE 2

Additional Comments:

The following contaminant was detected in the continuing calibration blanks and method blank at the following maximum concentration:

<u>Analyte</u>	<u>Maximum Concentration (mg/L)</u>	<u>Action Level (mg/kg)</u>
Arsenic ⁽¹⁾	0.00042	0.21

(1) Maximum concentration detected in the continuing calibration blank (CCB 3) analyzed on April 25, 2013 @ 13:41.

An action level of 5X the maximum concentration has been established in order to evaluate sample data for blank contamination. Sample aliquot, percent solids and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. No action was taken because the sample results were greater than the action level.

The nondetected results were reported to the laboratory reporting limit

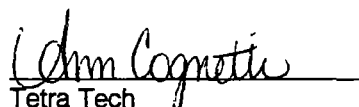
Positive results less than the reporting limit (RL) were qualified as estimated, J, due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

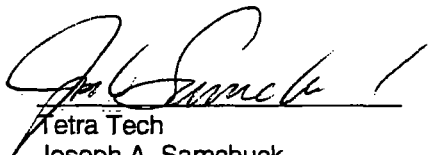
Laboratory Performance Issues: None.

Other factors affecting data quality: Positive results less than the reporting limit (RL) were qualified as estimated, J, due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999), EPA Functional Guidelines for Inorganic Data Review (October 2004), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (October 2010). The text of this report has been formulated to address only those problem areas affecting data quality.



Tetra Tech
Ann Cagnetti
Chemist/Data Validator



Tetra Tech
Joseph A. Samchuck
Data Validation Quality Assurance Officer

TO: J. Logan
FROM: A. Cognetti
SDG: 1304363
DATE: May 14, 2013
PAGE 3

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times \text{IDL}$ for inorganics and $< \text{CRQL}$ for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $> 40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 02 SDG: 1304363 FRACTION: M MEDIA: SOIL	NSAMPLE	DASB-CF-03			DASB-CF-04		
	LAB_ID	1304363-01			1304363-02		
	SAMP_DATE	4/19/2013			4/23/2013		
	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS				84.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ARSENIC		3.3			3.2		
LEAD		3.3			12		

PROJ_NO: 02435 SDG: 1304363 FRACTION: MISC MEDIA: SOIL	NSAMPLE	DASB-CF-04		
	LAB_ID	1304363-02		
	SAMP_DATE	4/23/2013		
	QC_TYPE	NM		
	UNITS	%		
	PCT_SOLIDS	84.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PERCENT SOLIDS		84		

PROJ_NO: 02 SDG: 1304363 FRACTION: PAH MEDIA: SOIL	NSAMPLE	DASB-CF-04		
	LAB_ID	1304363-02		
	SAMP_DATE	4/23/2013		
	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	84.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		0.08	U	
ACENAPHTHENE		0.08	U	
ACENAPHTHYLENE		0.08	U	
ANTHRACENE		0.08	U	
BENZO(A)ANTHRACENE		0.067	J	P
BENZO(A)PYRENE		0.07	J	P
BENZO(B)FLUORANTHENE		0.099		
BENZO(G,H,I)PERYLENE		0.028	J	P
BENZO(K)FLUORANTHENE		0.052	J	P
CHRYSENE		0.07	J	P
DIBENZO(A,H)ANTHRACENE		0.08	U	
FLUORANTHENE		0.13		
FLUORENE		0.08	U	
INDENO(1,2,3-CD)PYRENE		0.02	J	P
NAPHTHALENE		0.08	U	
PHENANTHRENE		0.08	J	P
PYRENE		0.13		

F

[REDACTED]

[REDACTED]

Appendix F

Statistical Analysis of Data

Post-Remediation Exposure Point Concentration Calculation

Exposure point concentrations (EPCs) were calculated based on data for post-remediation surface soil and subsurface soil samples representing current conditions at the USCG Atwater Facility at Detroit, Michigan. Surface soil was defined as the 0-2 ft below ground surface (bgs) soil interval and subsurface soil was defined as the soil interval greater than 2 ft bgs (but above the saturated zone). The dataset evaluated is comprised of the data reported for pre-remediation soil samples and confirmation soil samples *not excavated* during the removal action. For purposes of human health risk assessment, an EPC is defined as the concentration in an environmental medium to which a human receptor is exposed. With the exception of lead, the EPC is typically the calculated 95 percent upper confidence limit (UCL) on the arithmetic mean. Per EPA guidance, the arithmetic mean (versus the 95% UCL) is typically used as the EPC when conducting a human health risk assessment for lead. EPCs were calculated using USEPA's ProUCL version 4.1.01 software. The sample detection limit was used as an input for non-detected results in the EPC calculations.

Arsenic, lead, and benzo(a)pyrene equivalent (BAP) concentrations were the chemicals of concern (COCs) identified in the EE/CA (Tetra Tech 2013). Two EPCs were calculated for BAPs. The BAP Equivalents POS value was calculated using positive detections only for the individual carcinogenic PAHs. The BAP Equivalents HALFND value was calculated using one half the detection limit when an individual carcinogenic PAH was reported as not detected. A list of surface and subsurface soil samples used in the calculations are provided in Table 1 and the EPCs for surface and subsurface soil are provided in Tables 2 and 3, respectively. None of the EPCs calculated for the COCs exceed remedial goals established for the removal action.

**Table 1 Sample List Used in Exposure Point
Concentration Calculation**

Surface Soil	Subsurface Soil
DASS101-0002	DASB010607-AVG
DASS103-0002	DASB020607
DASS106-0002	DASB101-0305
DASS108-0002	DASB103-0305
DASS201-0002	DASB104-0305
DASS202-0002	DASB104A-0204
DASS203-0002-AVG	DASB106-0305
DASS204-0002	DASB108-0305
DASS205-0002	DASB115-0305
DASS208-0002	DASB115A-0204
DASS210-0002	DASB224-0507
DASS216-0002	DASB225-0507
DASS244-0002	DASB226-0507
DASS245-0002	DASB227-0507
DASS246-0002	DASB229-0305-AVG
DASB15_01.5-03	DASB230-0305
	DASB231-0305-AVG
	DASB232-0305
	DASB233-0305
	DASB236-0305
	DASB237-0305
	DASB240-0305
	DASB241-0305-AVG
	DASB242-0305
	DASB16_04-05.5
	DASS206-0002
	DASS207-0002
	DASS211-0002
	DASS212-0002
	DASS219-0002
	DASS220-0002
	DASS221-0002
	DASS222-0002-AVG
	DASS223-0002

TABLE 2 SURFACE SOIL EXPOSURE POINT CONCENTRATIONS						
CHEMICAL	ARITHMETIC MEAN	95% UCL	MAXIMUM CONCENTRATION	EPC	EPC STATISTIC	REMEDIAL GOALS
Arsenic	6	6.8 (NP)	9.4	6.8	95% Modified T UCL	7.6
Lead	129	236 (G)	620	129	Arithmetic Mean	400
BAP Equivalents HALFND	0.39	0.52 (NP)	1.05	0.52	95% KM (Chebyshev) UCL	2
BAP Equivalents POS	0.35	0.68 (G)	1.05	0.68	95% KM (Chebyshev) UCL	2

Units are mg/kg

TABLE 3 SUBSURFACE SOIL EXPOSURE POINT CONCENTRATIONS						
CHEMICAL	ARITHMETIC MEAN	95% UCL	MAXIMUM CONCENTRATION	EPC	EPC STATISTIC	REMEDIAL GOALS
Arsenic	6	6.9 (NP)	18	6.9	95% Student's T UCL	7.6
Lead	93.9	139 (G)	595	93.9	Arithmetic Mean	400
BAP Equivalents HALFND	0.64	1.7 (G)	7.9	1.7	95% KM (Chebyshev) UCL	2
BAP Equivalents POS	0.62	1.7 (G)	7.9	1.7	95% KM (Chebyshev) UCL	2

Units are mg/kg

ProUCL Surface Soil Input Files

Samples	ARSENIC	d_ARSENIC	LEAD	d_LEAD	BAP EQUIVALENT- HALFND	d_BAP EQUIVALENT- HALFND	BAP EQUIVALENT- POS	d_BAP EQUIVALENT- POS
DASS101-0002	5.7	1	31	1	0.22466	1	0.22466	1
DASS103-0002	6.8	1	43	1	0.21718	1	0.21718	1
DASS106-0002	6.4	1	99	1	0.25027	1	0.25027	1
DASS108-0002	2.5	1	11	1	0.101303	1	0.083303	1
DASS201-0002	6.7	1	66	1	0.32256	1	0.32256	1
DASS202-0002	6.3	1	39	1	0.93951	1	0.93951	1
DASS203-0002-AVG	5.25	1	29	1	0.616765	1	0.616765	1
DASS204-0002	6.2	1	40	1	0.25212	1	0.25212	1
DASS205-0002	6.1	1	21	1	1.04584	1	1.04584	1
DASS208-0002	7.7	1	340	1	0.37869	1	0.37869	1
DASS210-0002	2.3	1	2.7	1	0.019	0	0.019	0
DASS216-0002	6.8	1	180	1	0.3508	1	0.2458	1
DASS244-0002	6.3	1	430	1	0.38225	1	0.17325	1
DASS245-0002	9.4	1	620	1	0.70529	1	0.60529	1
DASS246-0002	5.6	1	52	1	0.235889	1	0.135889	1
DASB15_01.5-03	6.3	1	66	1	0.259114	1	0.053764	1

ProUCL Subsurface Soil Input Files

Samples	ARSENIC	d_ARSENIC	LEAD	d_LEAD	BAP EQUIVALENT- HALFND	d_BAP EQUIVALENT- HALFND	BAP EQUIVALENT- POS	d_BAP EQUIVALENT- POS
DASB010607-AVG			9.1	1	0.172416	1	0.061416	1
DASB020607			91.1	1	0.274526	1	0.159026	1
DASB101-0305	7.6	1	180	1	0.46073	1	0.46073	1
DASB103-0305	5	1	12	1	0.030473	1	0.020973	1
DASB104-0305	6.4	1	16	1	0.040265	1	0.019365	1
DASB104A-0204					0.63346	1	0.53346	1
DASB106-0305	5.5	1	8.5	1	0.02741	1	0.00761	1
DASB108-0305	3.3	1	53	1	0.027548	1	0.017548	1
DASB115-0305	5.5	1	140	1	1.8889	1	1.8889	1
DASB115A-0204					0.97648	1	0.87648	1
DASB224-0507	5.1	1	63	1	0.046229	1	0.046229	1
DASB225-0507	2.6	1	31	1	0.090433	1	0.090433	1
DASB226-0507	4.2	1	35	1	0.42905	1	0.42905	1
DASB227-0507	5.9	1	72	1	0.25159	1	0.25159	1
DASB229-0305-AVG	5.85	1	6.8	1	0.014159	1	0.00416	1
DASB230-0305	4.3	1	6.9	1	0.02	0	0.02	0
DASB231-0305-AVG	5.05	1	8.35	1	0.017576	1	0.0018535	1
DASB232-0305	6.1	1	7	1	0.021244	1	0.00024	1
DASB233-0305	5.8	1	16	1	0.023571	1	0.013571	1
DASB236-0305	4.9	1	26	1	0.14682	1	0.14682	1
DASB237-0305	2.5	1	31	1	0.016439	1	0.004889	1
DASB240-0305	7.2	1	120	1	1.9302	1	1.9302	1
DASB241-0305-AVG	7.85	1	295	1	1.014695	1	1.014695	1
DASB242-0305	7	1	18	1	0.022323	1	0.022323	1
DASB16_04-05.5	7.5	1	57	1	0.35881	1	0.16186	1
DASS206-0002	8.9	1	410	1	0.39145	1	0.39145	1
DASS207-0002	6.1	1	99	1	0.28432	1	0.28432	1
DASS211-0002	5.8	1	43	1	0.131942	1	0.082442	1
DASS212-0002	5.4	1	220	1	0.36905	1	0.36905	1
DASS219-0002	6	1	270	1	7.873	1	7.873	1
DASS220-0002	18	1	13	1	0.37989	1	0.37989	1
DASS221-0002	5.1	1	35	1	0.14505	1	0.14505	1
DASS222-0002-AVG	5.35	1	595	1	1.48676	1	1.48676	1
DASS223-0002	4.2	1	16	1	1.8324	1	1.8324	1

ProUCL Surface Soil Output Files

1	General UCL Statistics for Full Data Sets	
2	User Selected Options	
3	From File	0-2wo excav_sat_property.wst
4	Full Precision	OFF
5	Confidence Coefficient	95%
6	Number of Bootstrap Operations	2000
7		
8		
9	ARSENIC	
10		
11	General Statistics	
12	Number of Valid Observations	16
13	Number of Missing Values	9
14		
15	Raw Statistics	Log-transformed Statistics
16	Minimum	2.3
17	Maximum	9.4
18	Mean	6.022
19	Geometric Mean	5.719
20	Median	6.3
21	SD	1.702
22	Std. Error of Mean	0.425
23	Coefficient of Variation	0.283
24	Skewness	-0.791
25		
26	Relevant UCL Statistics	
27	Normal Distribution Test	Lognormal Distribution Test
28	Shapiro Wilk Test Statistic	0.858
29	Shapiro Wilk Critical Value	0.887
30	Data not Normal at 5% Significance Level	Data not Lognormal at 5% Significance Level
31		
32	Assuming Normal Distribution	Assuming Lognormal Distribution
33	95% Student's-t UCL	6.768
34	95% UCLs (Adjusted for Skewness)	95% Chebyshev (MVUE) UCL
35	95% Adjusted-CLT UCL (Chen-1995)	6.632
36	95% Modified-t UCL (Johnson-1978)	6.754
37		
38	Gamma Distribution Test	Data Distribution
39	k star (bias corrected)	8.034
40	Theta Star	0.75
41	MLE of Mean	6.022
42	MLE of Standard Deviation	2.125
43	nu star	257.1
44	Approximate Chi Square Value (.05)	221
45	Adjusted Level of Significance	0.0335
46	Adjusted Chi Square Value	217.1
47		
48	Anderson-Darling Test Statistic	1.629
49	Anderson-Darling 5% Critical Value	0.739
50	Kolmogorov-Smirnov Test Statistic	0.266
51	Kolmogorov-Smirnov 5% Critical Value	0.215
52	Data not Gamma Distributed at 5% Significance Level	
53		
54	Assuming Gamma Distribution	
55	95% Approximate Gamma UCL (Use when n >= 40)	7.006

56	95% Adjusted Gamma UCL (Use when n < 40)		7.129						
57									
58	Potential UCL to Use				Use 95% Student's-t UCL				6.768
59					or 95% Modified-t UCL				6.754
60									
61	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.								
62	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)								
63	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.								
64									
65	Note: For highly negative-skewed data, confidence limits								
66	(e.g., Chen, Johnson, Lognormal, and Gamma) may not be								
67	reliable. Chen's and Johnson's methods provide								
68	adjustments for positively skewed data sets.								
69									
70									
71	LEAD								
72									
73	General Statistics								
74	Number of Valid Observations		16	Number of Distinct Observations		15			
75	Number of Missing Values		9						
76									
77	Raw Statistics			Log-transformed Statistics					
78	Minimum		2.7	Minimum of Log Data		0.993			
79	Maximum		620	Maximum of Log Data		6.43			
80	Mean		129.4	Mean of log Data		4.049			
81	Geometric Mean		57.37	SD of log Data		1.386			
82	Median		47.5						
83	SD		178.5						
84	Std. Error of Mean		44.63						
85	Coefficient of Variation		1.38						
86	Skewness		1.938						
87									
88	Relevant UCL Statistics								
89	Normal Distribution Test			Lognormal Distribution Test					
90	Shapiro Wilk Test Statistic		0.689	Shapiro Wilk Test Statistic		0.962			
91	Shapiro Wilk Critical Value		0.887	Shapiro Wilk Critical Value		0.887			
92	Data not Normal at 5% Significance Level			Data appear Lognormal at 5% Significance Level					
93									
94	Assuming Normal Distribution			Assuming Lognormal Distribution					
95	95% Student's-t UCL		207.6	95% H-UCL		496.1			
96	95% UCLs (Adjusted for Skewness)			95% Chebyshev (MVUE) UCL		369.3			
97	95% Adjusted-CLT UCL (Chen-1995)		225.9	97.5% Chebyshev (MVUE) UCL		470.5			
98	95% Modified-t UCL (Johnson-1978)		211.2	99% Chebyshev (MVUE) UCL		669.4			
99									
100	Gamma Distribution Test			Data Distribution					
101	k star (bias corrected)		0.641	Data Follow Appr. Gamma Distribution at 5% Significance Level					
102	Theta Star		201.7						
103	MLE of Mean		129.4						
104	MLE of Standard Deviation		161.5						
105	nu star		20.52						
106	Approximate Chi Square Value (.05)		11.23	Nonparametric Statistics					
107	Adjusted Level of Significance		0.0335	95% CLT UCL		202.8			
108	Adjusted Chi Square Value		10.46	95% Jackknife UCL		207.6			
109				95% Standard Bootstrap UCL		200.9			
110	Anderson-Darling Test Statistic		0.706	95% Bootstrap-t UCL		273.7			

111	Anderson-Darling 5% Critical Value	0.776	95% Hall's Bootstrap UCL	216.8
112	Kolmogorov-Smirnov Test Statistic	0.232	95% Percentile Bootstrap UCL	207.9
113	Kolmogorov-Smirnov 5% Critical Value	0.223	95% BCA Bootstrap UCL	223.7
114	Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	323.9
115			97.5% Chebyshev(Mean, Sd) UCL	408.1
116	Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	573.5
117	95% Approximate Gamma UCL (Use when $n \geq 40$)	236.3		
118	95% Adjusted Gamma UCL (Use when $n < 40$)	253.8		
119				
120	Potential UCL to Use		Use 95% Approximate Gamma UCL	236.3
121				
122	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
123	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
124	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.			
125				

1	General UCL Statistics for Data Sets with Non-Detects			
2	User Selected Options			
3	From File	0-2wo excav_sat_property.wst		
4	Full Precision	OFF		
5	Confidence Coefficient	95%		
6	Number of Bootstrap Operations	2000		
7				
8				
9	BAP EQUIVALENT-HALFND			
10				
11	General Statistics			
12	Number of Valid Data	16	Number of Detected Data	15
13	Number of Distinct Detected Data	15	Number of Non-Detect Data	1
14	Number of Missing Values	9	Percent Non-Detects	6.25%
15				
16	Raw Statistics		Log-transformed Statistics	
17	Minimum Detected	0.101	Minimum Detected	-2.29
18	Maximum Detected	1.046	Maximum Detected	0.0448
19	Mean of Detected	0.419	Mean of Detected	-1.055
20	SD of Detected	0.28	SD of Detected	0.623
21	Minimum Non-Detect	0.019	Minimum Non-Detect	-3.963
22	Maximum Non-Detect	0.019	Maximum Non-Detect	-3.963
23				
24				
25	UCL Statistics			
26	Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
27	Shapiro Wilk Test Statistic	0.822	Shapiro Wilk Test Statistic	0.939
28	5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
29	Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
30				
31	Assuming Normal Distribution		Assuming Lognormal Distribution	
32	DL/2 Substitution Method		DL/2 Substitution Method	
33	Mean	0.393	Mean	-1.28
34	SD	0.289	SD	1.083
35	95% DL/2 (t) UCL	0.52	95% H-Stat (DL/2) UCL	1.103
36				
37	Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
38	Mean	0.385	Mean in Log Scale	-1.149
39	SD	0.294	SD in Log Scale	0.709
40	95% MLE (t) UCL	0.514	Mean in Original Scale	0.397
41	95% MLE (Tiku) UCL	0.512	SD in Original Scale	0.284
42			95% t UCL	0.522
43			95% Percentile Bootstrap UCL	0.516
44			95% BCA Bootstrap UCL	0.536
45			95% H UCL	0.62
46				
47	Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
48	k star (bias corrected)	2.331	Data appear Gamma Distributed at 5% Significance Level	
49	Theta Star	0.18		
50	nu star	69.94		
51				
52	A-D Test Statistic	0.672	Nonparametric Statistics	
53	5% A-D Critical Value	0.745	Kaplan-Meier (KM) Method	
54	K-S Test Statistic	0.745	Mean	0.399
55	5% K-S Critical Value	0.223	SD	0.273

56	Data appear Gamma Distributed at 5% Significance Level			SE of Mean	0.0706
57				95% KM (t) UCL	0.523
58	Assuming Gamma Distribution			95% KM (z) UCL	0.515
59	Gamma ROS Statistics using Extrapolated Data			95% KM (jackknife) UCL	0.519
60	Minimum	0.000001		95% KM (bootstrap t) UCL	0.579
61	Maximum	1.046		95% KM (BCA) UCL	0.516
62	Mean	0.393		95% KM (Percentile Bootstrap) UCL	0.514
63	Median	0.291		95% KM (Chebyshev) UCL	0.707
64	SD	0.29		97.5% KM (Chebyshev) UCL	0.84
65	k star	0.581		99% KM (Chebyshev) UCL	1.102
66	Theta star	0.676			
67	Nu star	18.58	Potential UCLs to Use		
68	AppChi2	9.812		95% KM (BCA) UCL	0.516
69	95% Gamma Approximate UCL (Use when n >= 40)		0.744		
70	95% Adjusted Gamma UCL (Use when n < 40)		0.802		
71	Note: DL/2 is not a recommended method.				
72					
73	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.				
74	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).				
75	For additional insight, the user may want to consult a statistician.				
76					
77					
78	BAP EQUIVALENT-POS				
79					
80	General Statistics				
81	Number of Valid Data	16	Number of Detected Data	15	
82	Number of Distinct Detected Data	15	Number of Non-Detect Data	1	
83	Number of Missing Values	9	Percent Non-Detects	6.25%	
84					
85	Raw Statistics		Log-transformed Statistics		
86	Minimum Detected	0.0538	Minimum Detected	-2.923	
87	Maximum Detected	1.046	Maximum Detected	0.0448	
88	Mean of Detected	0.37	Mean of Detected	-1.297	
89	SD of Detected	0.3	SD of Detected	0.829	
90	Minimum Non-Detect	0.019	Minimum Non-Detect	-3.963	
91	Maximum Non-Detect	0.019	Maximum Non-Detect	-3.963	
92					
93					
94	UCL Statistics				
95	Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only		
96	Shapiro Wilk Test Statistic	0.833	Shapiro Wilk Test Statistic	0.967	
97	5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881	
98	Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level		
99					
100	Assuming Normal Distribution		Assuming Lognormal Distribution		
101	DL/2 Substitution Method		DL/2 Substitution Method		
102	Mean	0.347	Mean	-1.507	
103	SD	0.304	SD	1.161	
104	95% DL/2 (t) UCL	0.48	95% H-Stat (DL/2) UCL	1.055	
105					
106	Maximum Likelihood Estimate(MLE) Method		Log ROS Method		
107	Mean	0.338	Mean in Log Scale	-1.423	
108	SD	0.309	SD in Log Scale	0.947	
109	95% MLE (t) UCL	0.473	Mean in Original Scale	0.349	
110	95% MLE (Tiku) UCL	0.469	SD in Original Scale	0.302	

111			95% t UCL	0.481
112			95% Percentile Bootstrap UCL	0.477
113			95% BCA Bootstrap UCL	0.494
114			95% H UCL	0.717
115	Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
116			Data appear Gamma Distributed at 5% Significance Level	
117	k star (bias corrected)	1.49		
118	Theta Star	0.248		
119	nu star	44.71		
120				
121	A-D Test Statistic	0.38	Nonparametric Statistics	
122	5% A-D Critical Value	0.75	Kaplan-Meier (KM) Method	
123	K-S Test Statistic	0.75	Mean	0.35
124	5% K-S Critical Value	0.225	SD	0.291
125	Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0754
126			95% KM (t) UCL	0.482
127	Assuming Gamma Distribution		95% KM (z) UCL	0.474
128	Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.481
129	Minimum	0.000001	95% KM (bootstrap t) UCL	0.561
130	Maximum	1.046	95% KM (BCA) UCL	0.468
131	Mean	0.347	95% KM (Percentile Bootstrap) UCL	0.48
132	Median	0.248	95% KM (Chebyshev) UCL	0.678
133	SD	0.305	97.5% KM (Chebyshev) UCL	0.821
134	k star	0.534	99% KM (Chebyshev) UCL	1.1
135	Theta star	0.65		
136	Nu star	17.07	Potential UCLs to Use	
137	AppChi2	8.724	95% KM (Chebyshev) UCL	0.678
138	95% Gamma Approximate UCL (Use when $n \geq 40$)			
139	95% Adjusted Gamma UCL (Use when $n < 40$)			
140	Note: DL/2 is not a recommended method.			
141				
142	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
143	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
144	For additional insight, the user may want to consult a statistician.			
145				

ProUCL Subsurface Soil Output Files

1	General UCL Statistics for Full Data Sets	
2	User Selected Options	
3	From File	greater 2 wo excav_satproperty.wst
4	Full Precision	OFF
5	Confidence Coefficient	95%
6	Number of Bootstrap Operations	2000
7		
8		
9	ARSENIC	
10		
11	General Statistics	
12	Number of Valid Observations	30
13	Number of Missing Values	4
14		
15	Raw Statistics	Log-transformed Statistics
16	Minimum	2.5
17	Maximum	18
18	Mean	6
19	Geometric Mean	5.597
20	Median	5.65
21	SD	2.69
22	Std. Error of Mean	0.491
23	Coefficient of Variation	0.448
24	Skewness	3.122
25		
26	Relevant UCL Statistics	
27	Normal Distribution Test	Lognormal Distribution Test
28	Shapiro Wilk Test Statistic	0.707
29	Shapiro Wilk Critical Value	0.927
30	Data not Normal at 5% Significance Level	Data not Lognormal at 5% Significance Level
31		
32	Assuming Normal Distribution	Assuming Lognormal Distribution
33	95% Student's-t UCL	6.835
34	95% UCLs (Adjusted for Skewness)	95% Chebyshev (MVUE) UCL
35	95% Adjusted-CLT UCL (Chen-1995)	7.107
36	95% Modified-t UCL (Johnson-1978)	6.881
37		
38	Gamma Distribution Test	Data Distribution
39	k star (bias corrected)	6.637
40	Theta Star	0.904
41	MLE of Mean	6
42	MLE of Standard Deviation	2.329
43	nu star	398.2
44	Approximate Chi Square Value (.05)	353
45	Adjusted Level of Significance	0.041
46	Adjusted Chi Square Value	350.5
47		
48	Anderson-Darling Test Statistic	1.115
49	Anderson-Darling 5% Critical Value	0.746
50	Kolmogorov-Smirnov Test Statistic	0.167
51	Kolmogorov-Smirnov 5% Critical Value	0.16
52	Data not Gamma Distributed at 5% Significance Level	
53		
54	Assuming Gamma Distribution	
55	95% Approximate Gamma UCL (Use when n >= 40)	6.769

56	95% Adjusted Gamma UCL (Use when n < 40)		6.817						
57									
58	Potential UCL to Use				Use 95% Student's-t UCL				6.835
59					or 95% Modified-t UCL				6.881
60									
61	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.								
62	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)								
63	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.								
64									
65									
66	LEAD								
67									
68	General Statistics								
69	Number of Valid Observations		32	Number of Distinct Observations		28			
70	Number of Missing Values		2						
71									
72	Raw Statistics			Log-transformed Statistics					
73	Minimum		6.8	Minimum of Log Data		1.917			
74	Maximum		595	Maximum of Log Data		6.389			
75	Mean		93.87	Mean of log Data		3.721			
76	Geometric Mean		41.3	SD of log Data		1.308			
77	Median		35						
78	SD		134						
79	Std. Error of Mean		23.69						
80	Coefficient of Variation		1.428						
81	Skewness		2.366						
82									
83	Relevant UCL Statistics								
84	Normal Distribution Test			Lognormal Distribution Test					
85	Shapiro Wilk Test Statistic		0.681	Shapiro Wilk Test Statistic		0.946			
86	Shapiro Wilk Critical Value		0.93	Shapiro Wilk Critical Value		0.93			
87	Data not Normal at 5% Significance Level			Data appear Lognormal at 5% Significance Level					
88									
89	Assuming Normal Distribution			Assuming Lognormal Distribution					
90	95% Student's-t UCL		134	95% H-UCL		188.7			
91	95% UCLs (Adjusted for Skewness)			95% Chebyshev (MVUE) UCL		207.6			
92	95% Adjusted-CLT UCL (Chen-1995)		143.4	97.5% Chebyshev (MVUE) UCL		257.2			
93	95% Modified-t UCL (Johnson-1978)		135.7	99% Chebyshev (MVUE) UCL		354.8			
94									
95	Gamma Distribution Test			Data Distribution					
96	k star (bias corrected)		0.684	Data Follow Appr. Gamma Distribution at 5% Significance Level					
97	Theta Star		137.3						
98	MLE of Mean		93.87						
99	MLE of Standard Deviation		113.5						
100	nu star		43.77						
101	Approximate Chi Square Value (.05)		29.59	Nonparametric Statistics					
102	Adjusted Level of Significance		0.0416	95% CLT UCL		132.8			
103	Adjusted Chi Square Value		28.97	95% Jackknife UCL		134			
104				95% Standard Bootstrap UCL		133.4			
105	Anderson-Darling Test Statistic		1.029	95% Bootstrap-t UCL		154.2			
106	Anderson-Darling 5% Critical Value		0.789	95% Hall's Bootstrap UCL		157.1			
107	Kolmogorov-Smirnov Test Statistic		0.153	95% Percentile Bootstrap UCL		136.5			
108	Kolmogorov-Smirnov 5% Critical Value		0.162	95% BCA Bootstrap UCL		146.4			
109	Data follow Appr. Gamma Distribution at 5% Significance Level			95% Chebyshev(Mean, Sd) UCL		197.1			
110				97.5% Chebyshev(Mean, Sd) UCL		241.8			

111	Assuming Gamma Distribution	99% Chebyshev(Mean, Sd) UCL	329.6
112	95% Approximate Gamma UCL (Use when $n \geq 40$)	138.8	
113	95% Adjusted Gamma UCL (Use when $n < 40$)	141.8	
114			
115	Potential UCL to Use	Use 95% Approximate Gamma UCL	138.8
116			
117	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.		
118	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)		
119	and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.		
120			

1	General UCL Statistics for Data Sets with Non-Detects			
2	User Selected Options			
3	From File	greater 2 wo excav_satproperty.wst		
4	Full Precision	OFF		
5	Confidence Coefficient	95%		
6	Number of Bootstrap Operations	2000		
7				
8				
9	BAP EQUIVALENT-HALFND			
10				
11	General Statistics			
12	Number of Valid Data	34	Number of Detected Data	33
13	Number of Distinct Detected Data	33	Number of Non-Detect Data	1
14			Percent Non-Detects	2.94%
15				
16	Raw Statistics		Log-transformed Statistics	
17	Minimum Detected	0.0142	Minimum Detected	-4.257
18	Maximum Detected	7.873	Maximum Detected	2.063
19	Mean of Detected	0.661	Mean of Detected	-1.709
20	SD of Detected	1.415	SD of Detected	1.701
21	Minimum Non-Detect	0.02	Minimum Non-Detect	-3.912
22	Maximum Non-Detect	0.02	Maximum Non-Detect	-3.912
23				
24				
25	UCL Statistics			
26	Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
27	Shapiro Wilk Test Statistic	0.468	Shapiro Wilk Test Statistic	0.944
28	5% Shapiro Wilk Critical Value	0.931	5% Shapiro Wilk Critical Value	0.931
29	Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
30				
31	Assuming Normal Distribution		Assuming Lognormal Distribution	
32	DL/2 Substitution Method		DL/2 Substitution Method	
33	Mean	0.642	Mean	-1.794
34	SD	1.398	SD	1.747
35	95% DL/2 (t) UCL	1.048	95% H-Stat (DL/2) UCL	2.208
36				
37	Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
38	Mean	0.521	Mean in Log Scale	-1.795
39	SD	1.495	SD in Log Scale	1.749
40	95% MLE (t) UCL	0.955	Mean in Original Scale	0.642
41	95% MLE (Tiku) UCL	0.927	SD in Original Scale	1.398
42			95% t UCL	1.048
43			95% Percentile Bootstrap UCL	1.063
44			95% BCA Bootstrap UCL	1.294
45			95% H UCL	2.217
46				
47	Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
48	k star (bias corrected)	0.467	Data Follow Appr. Gamma Distribution at 5% Significance Level	
49	Theta Star	1.414		
50	nu star	30.84		
51				
52	A-D Test Statistic	1.066	Nonparametric Statistics	
53	5% A-D Critical Value	0.813	Kaplan-Meier (KM) Method	
54	K-S Test Statistic	0.813	Mean	0.642
55	5% K-S Critical Value	0.162	SD	1.377

56	Data follow Appr. Gamma Distribution at 5% Significance Level			SE of Mean	0.24
57				95% KM (t) UCL	1.048
58	Assuming Gamma Distribution			95% KM (z) UCL	1.036
59	Gamma ROS Statistics using Extrapolated Data			95% KM (jackknife) UCL	1.048
60	Minimum	0.000001	95% KM (bootstrap t) UCL		1.599
61	Maximum	7.873	95% KM (BCA) UCL		1.06
62	Mean	0.641	95% KM (Percentile Bootstrap) UCL		1.069
63	Median	0.212	95% KM (Chebyshev) UCL		1.688
64	SD	1.398	97.5% KM (Chebyshev) UCL		2.14
65	k star	0.389	99% KM (Chebyshev) UCL		3.029
66	Theta star	1.649			
67	Nu star	26.45	Potential UCLs to Use		
68	AppChi2	15.73	95% KM (Chebyshev) UCL		1.688
69	95% Gamma Approximate UCL (Use when n >= 40)		1.079		
70	95% Adjusted Gamma UCL (Use when n < 40)		1.108		
71	Note: DL/2 is not a recommended method.				
72					
73	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.				
74	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).				
75	For additional insight, the user may want to consult a statistician.				
76					
77					
78	BAP EQUIVALENT-POS				
79					
80	General Statistics				
81	Number of Valid Data	34	Number of Detected Data	33	
82	Number of Distinct Detected Data	33	Number of Non-Detect Data	1	
83				Percent Non-Detects	2.94%
84					
85	Raw Statistics		Log-transformed Statistics		
86	Minimum Detected	0.00024	Minimum Detected	-8.335	
87	Maximum Detected	7.873	Maximum Detected	2.063	
88	Mean of Detected	0.637	Mean of Detected	-2.184	
89	SD of Detected	1.421	SD of Detected	2.309	
90	Minimum Non-Detect	0.02	Minimum Non-Detect	-3.912	
91	Maximum Non-Detect	0.02	Maximum Non-Detect	-3.912	
92					
93					
94	UCL Statistics				
95	Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only		
96	Shapiro Wilk Test Statistic	0.464	Shapiro Wilk Test Statistic	0.969	
97	5% Shapiro Wilk Critical Value	0.931	5% Shapiro Wilk Critical Value	0.931	
98	Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level		
99					
100	Assuming Normal Distribution		Assuming Lognormal Distribution		
101	DL/2 Substitution Method		DL/2 Substitution Method		
102	Mean	0.618	Mean	-2.255	
103	SD	1.404	SD	2.311	
104	95% DL/2 (t) UCL	1.026	95% H-Stat (DL/2) UCL	8.742	
105					
106	Maximum Likelihood Estimate(MLE) Method		Log ROS Method		
107	Mean	0.288	Mean in Log Scale	-2.267	
108	SD	1.694	SD in Log Scale	2.324	
109	95% MLE (t) UCL	0.78	Mean in Original Scale	0.618	
110	95% MLE (Tiku) UCL	0.787	SD in Original Scale	1.404	

111			95% t UCL	1.026
112			95% Percentile Bootstrap UCL	1.047
113			95% BCA Bootstrap UCL	1.348
114			95% H UCL	9.072
115	Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
116			Data appear Gamma Distributed at 5% Significance Level	
117	k star (bias corrected)	0.368		
118	Theta Star	1.73		
119	nu star	24.29		
120				
121	A-D Test Statistic	0.478	Nonparametric Statistics	
122	5% A-D Critical Value	0.837	Kaplan-Meier (KM) Method	
123	K-S Test Statistic	0.837	Mean	0.618
124	5% K-S Critical Value	0.164	SD	1.383
125	Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.241
126			95% KM (t) UCL	1.026
127	Assuming Gamma Distribution		95% KM (z) UCL	1.014
128	Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.026
129	Minimum	0.000001	95% KM (bootstrap t) UCL	1.655
130	Maximum	7.873	95% KM (BCA) UCL	1.096
131	Mean	0.618	95% KM (Percentile Bootstrap) UCL	1.03
132	Median	0.153	95% KM (Chebyshev) UCL	1.668
133	SD	1.404	97.5% KM (Chebyshev) UCL	2.122
134	k star	0.322	99% KM (Chebyshev) UCL	3.015
135	Theta star	1.918		
136	Nu star	21.9	Potential UCLs to Use	
137	AppChi2	12.26	95% KM (Chebyshev) UCL	1.668
138	95% Gamma Approximate UCL (Use when $n \geq 40$)			
139	95% Adjusted Gamma UCL (Use when $n < 40$)			
140	Note: DL/2 is not a recommended method.			
141				
142	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
143	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
144	For additional insight, the user may want to consult a statistician.			
145				



Appendix G

Quarterly Groundwater Monitoring
Reports

JUNE 2013 EVENT



TETRA TECH

661 Andersen Drive ■ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7000 ■ FAX (412) 921-4040 ■ www.tetrattech.com

PITT 08-13-002

August 19, 2013

Mr. James Cook
Environmental Engineer
USCG Civil Engineering Unit
1240 East Ninth St., Rm. 2179
Cleveland, OH 44199-2060

Reference: Contract Number HSCG83-08-D-3CL109
Task Order Number HSCG83-09-J-3CL358

Subject: **Groundwater Monitoring Report (June 2013 Event) for U.S. Coast Guard Atwater Facility**

Dear Mr. Cook:

Tetra Tech, Inc. (Tt) is pleased to submit this quarterly Groundwater Monitoring Letter Report for the referenced Task Order for the United States Coast Guard (USCG) Atwater Facility in Detroit, Michigan. The objective of this portion of the project includes quarterly monitoring of the groundwater associated with the Atwater Facility (Figure 1) following the removal action conducted in April 2013. The sampling is being performed according to Modification 004 of the Task Order.

Four quarterly groundwater sampling events are planned. The first event, described in this report, was performed in June 2013. Two monitoring wells that replaced two of the monitoring wells abandoned during the Removal Action were also installed in June 2013 prior to the groundwater sampling event. The next events are scheduled for September 2013, December 2013, and March 2013. Field activities and groundwater analytical results for the June 2013 event are summarized in this report. The work was performed in accordance to the Field Sampling Plan - Soil and Groundwater (Tetra Tech, 2011) and the Quality Assurance Project Plan Addendum (Tetra Tech, 2011).

FIELD OPERATIONS

Monitoring Well Drilling and Installation

In June 2013, two permanent monitoring wells (MW01R and MW02R) were installed at the Atwater Site to investigate the first water bearing (shallow groundwater) zone. Monitoring wells were installed to replace MW01 and MW02 which were abandoned during the Removal Action in April 2013. MW03 was also abandoned, but did not need to be replaced because all previous sampling results were less than groundwater criteria.

GeoServ, Inc., under Tetra Tech's supervision, installed the two monitoring wells (MW01R and MW02R) at the site on June 11, 2013. Well construction diagrams are provided Attachment A. The monitoring wells were installed at locations shown on Figure 1. Hollow-stem auger drilling techniques were used for monitoring well installation. Each monitoring well was installed to the same depth as the original wells, 13 feet bgs. The nominal diameter of the well borings was approximately 8 inches.

Each monitoring well was constructed of 2-inch, Schedule 40 polyvinyl chloride (PVC) flush-joint riser pipe; 10-foot long flush-joint, factory-slotted, PVC well screen; and an end cap. Each section of casing

and screen was National Sanitation Foundation approved. The well screens had a slot size of 0.01 inch (10 slot) and were supplied with a flush-joint bottom cap.

After the riser pipe and screens were in place, the annular space was backfilled through the hollow-stem augers with U.S. Standard Sieve size No. 30-50 clean silica sand from the bottom of the boring to 1 foot above the top of the well screen. As the sand pack was installed, the augers were slowly retracted to provide an adequate sand pack around the well. The depths of construction materials were constantly monitored during the installation of the monitoring wells by using a weighted tape to confirm that no bridging of the annular material occurred during the installation process. A bentonite seal consisting of bentonite chips (approximately 1 foot thick) was then installed above the sand pack and allowed to hydrate in accordance with the manufacturer's recommendations.

A flush-mounted protective steel casing equipped with a sealed, bolted cap was installed over the two permanent wells. Each well riser pipe was secured with a locking J-plug. Each monitoring well was fitted with a 6-inch diameter by 10-inch long steel protective casing with an 8-inch lid. The annulus between the flush-mounted cover and the ground was filled with concrete. The soil cuttings from each monitoring well were collected in 55-gallon drums and labeled as investigation-derived waste (IDW). Disposal characterization was based on the results of previous IDW samples.

After the monitoring wells were installed, they were developed to remove fine materials (i.e., sands, silts, and clays) from the sand pack and the immediate area around the screened interval of the wells. Wells were developed by pumping using a submersible pump. During pumping, the well screens were periodically surged and the saturated screen interval was swept using the pump as a swab by pulling it up and down along the screen to remove the fine materials.

A field turbidity meter was used to measure turbidity during development. Wells were developed until a turbidity of 10 nephelometric turbidity units (NTUs) was achieved, with a minimum of 10 casing volumes purged from each well (see Attachment A). The purge water was containerized in 55-gallon drums.

The horizontal coordinates and casing elevations of the new wells were surveyed by Tetra Tech-IER.

Groundwater Sampling

Depth-to-water measurements were obtained at the three monitoring wells on June 25, 2013. Water level depths in the wells ranged from 2.63 (MW01R) to 3.58 (MW04) feet below top of casing (BTOC). The depth to the river water surface was not measured. Groundwater elevation data is provided in Table 1.

The groundwater level elevations in the three wells were lower (0.04 foot to 1.24 foot) during the June 2013 event as compared to the March 2012 event. The groundwater flow direction was toward the river.

On June 25, 2013, Tt collected groundwater samples from the three monitoring wells, MW01R, MW02R, and MW04. A duplicate sample was collected from MW01R. Samples were collected using low flow methods. Copies of the Groundwater Sample Log Sheets and Low Flow Purge Data Sheets are included in Attachment B. Following collection, the groundwater samples were shipped to Trimatrix Laboratories in Grand Rapids, Michigan for analysis of polynuclear aromatic hydrocarbons (PAHs) by EPA Method SW846 8310, and for total and dissolved Michigan 10 metals by EPA Methods 6020A and 7470A. Groundwater for dissolved metals analyses were filtered in the field using a 0.45 micron filter. Purge water was drummed and was subsequently disposed of off-site along with the soil cuttings by EarthSmart Environmental Solutions, LLC after confirming the results of the groundwater analyses (see Attachment C).

Groundwater samples were also analyzed for geochemical parameters using field kits and meters. The field kit analyses included dissolved oxygen (DO), alkalinity, carbon dioxide, ferrous iron, sulfide, and sulfate. The field meter measurements included pH and oxidation-reduction potential (ORP).

RESULTS

Laboratory Results

The analytical results for this event are summarized in Table 2. This table also includes the results from the previous sampling events. A copy of the laboratory reports are provided in Attachment D. The data validation report is included in Attachment E as a separate pdf.

The analytical results were not significantly different from the previous sampling events. However, unlike previous rounds, no PAHs were detected in the sample from MW02R (as compared to MW02). Similarly, PAH concentrations were less than detection limits in MW04, except for trace concentrations of two PAHs (benzo(a)anthracene and chrysene). The concentrations of PAHs in the wells were less than the Michigan Department of Environmental Quality (MDEQ) residential exposure criteria.

At MW01R, the total metals concentrations and dissolved metals concentrations were similar to previous results at MW01, except for arsenic. The total arsenic concentrations (sample and duplicate) in the sample from MW01R were 5 µg/L and 4.9 µg/L, respectively, and the dissolved arsenic concentrations (sample and duplicate) were 4.6 µg/L and 5.1 µg/L, respectively. The range of total arsenic concentrations from previous samples from MW01 was 0.6 µg/L to 0.95 µg/L, and the range of dissolved arsenic concentrations was 0.52 µg/L to 1.5 µg/L. Although the arsenic concentrations were higher for this round, they are less than the United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) of 10 µg/L.

At MW02R, the total metals concentrations and dissolved metals concentrations were similar to previous results at MW02, except for arsenic. The total arsenic concentration in the sample from MW02R was 0.55J µg/L, and the dissolved arsenic concentration was 0.58J µg/L. The range of total arsenic concentrations from previous samples from MW02 was 1J µg/L to 12 µg/L, and the range of dissolved arsenic concentrations was 6.2 µg/L to 14 µg/L. The arsenic concentrations were much lower for this round and are less than the USEPA MCL of 10 µg/L.

Total metals concentrations and dissolved metals concentrations in MW04 were generally similar to the results of the last event.

Field Measurements

Groundwater samples were analyzed in the field using field kits and meters to evaluate the geochemistry and its effects on contaminant concentrations and the potential for biological activity. Samples were analyzed for DO, alkalinity, carbon dioxide, ferrous iron, sulfide, and sulfate with field kits, and pH and ORP were measured with field meters. These results are summarized on Table 3.

The results for MW01R suggest anaerobic biological activity. The DO was low, and the ORP was negative. The ORP result was similar to previous measurements from MW01. Alkalinity, carbon dioxide, and ferrous iron concentrations were relatively high, which are also typical of anaerobic biological activity. Sulfide was detectable. The sulfate concentrations appeared to be typical, and the pH was in the neutral range.

The results from MW02R were different from MW01R. The DO was high, and ORP was positive which are favorable to aerobic biological activity. The ORP results from previous measurements at MW02 were typically negative. The alkalinity concentration was approximately one half of the result from MW01R, and the carbon dioxide concentration was approximately one third of the result from MW01R. No ferrous iron or sulfide were detected which suggests the absence of anaerobic activity. The sulfate concentration was similar to the concentration from MW01R, and the pH was in the neutral range.

The results from MW04 had more in common with MW01R than MW02R. The DO was low, but the ORP was positive. The ORP results from previous measurements at MW03 were typically negative. The alkalinity and carbon dioxide concentrations were high, similar to MW01R, but the ferrous iron concentration was about one third of the value from MW01R. No sulfide was detected, and the sulfate concentration was greater than the concentrations in MW01R and MW02R. The pH was in the neutral


range. These results are difficult to interpret. The high ORP suggests aerobic activity, but the low DO and high ferrous iron concentration suggest anaerobic activity. The high sulfate concentration suggests either different source of fill or influence from off-site. As noted in the Removal Action Completion Report, the results of soil samples collected at the border of the site suggest that the adjacent property could be a source of contaminants.

CONCLUSIONS AND RECOMMENDATIONS

Concentrations of PAHs and metals were less than USEPA and MDEQ criteria during this sampling event. PAH concentrations were less than detection limits in MW02R, although numerous individual PAHs were previously detected in samples from MW02. The high arsenic concentrations previously measured at MW02 were not observed in this event. The results of the geochemistry field measurements were inconclusive, and the results from future events may allow for better evaluation. Long-term monitoring will be continued as planned.

Should you have any questions, please contact the Project Manager, Mr. Joseph Logan at (412) 921-7231 or me at (412) 921-8415.

Very truly yours,



Roger A. Clark, Ph.D.
Program Manager

RAC

cc: file 112G02435
Joseph Logan

TABLES

TABLE 1

**WATER LEVEL MEASUREMENTS
QUARTERLY MONITORING REPORT FOR JUNE 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN**

Well ID	Ground Surface Elevation (feet, NAVD 88)	Top of Casing (feet, NAVD 88)	Screened Interval		6/6/2011		9/14/2011		12/16/2011		3/6/2012		6/25/2013	
			Top (feet bgs)	Bottom (feet bgs)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)
MW01	579.58	579.53	3.0	13.0	2.22	577.31	1.70	577.83	1.00	578.53	1.43	578.10	ABAN	-
MW01R	579.69	579.49	3.0	13.0	-	-	-	-	-	-	-	-	2.63	576.86
MW02	579.54	579.62	3.0	13.0	3.95	575.67	3.32	576.30	3.20	576.42	3.42	576.20	ABAN	-
MW02R	579.07	578.83	3.0	13.0	-	-	-	-	-	-	-	-	2.67	576.16
MW03	579.33	579.00	3.0	13.0	3.89	575.11	3.94	575.06	4.08	574.92	4.26	574.74	ABAN	-
MW04	578.68	578.11	3.0	13.0	3.18	574.93	3.05	575.06	2.49	575.62	3.30	574.81	3.58	574.53
River Level	578.69	NA	NA	NA	3.85	574.84	4.50	574.19	4.20	574.49	4.78	573.91	NM	NM

Notes:

bgs - below ground

ABAN - Abandoned.

BTOC - below top of casing.

NA - Not Applicable.

NAVD - North American Vertical Datum.

NM - Not measured.

TABLE 2

**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR JUNE 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 1 OF 3**

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW01				DAMW01R	
					6/6/2011	9/14/2011	12/16/2011	3/6/2012	6/25/2013	6/25/2013-D
					3 13	3 13	3 13	3 13	3 13	3 13
DISSOLVED METALS (UG/L)										
ARSENIC	10	10	10	10	0.95 J	0.73 J	0.36 J	0.6 J	5	4.9
BARIUM	2000	2000	670	2000	190 J	300	260	250	300	290
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.14 J	0.2 U	0.1 U	0.1 U
CHROMIUM	100	100	100	100	0.3 J	0.27 J	1 U	1 U	0.71 U	0.86 U
COPPER	1300	1000	13	1300	0.44 J	0.61 J	0.28 J	1 U	0.73 J	0.55 J
LEAD	15	2	14	15	0.17 J	0.18 J	1 U	1 UJ	0.56 J	0.41 J
SELENIUM	50	50	5	50	5 UJ	1.1 J	5 U	5 U	1 U	1 U
ZINC	NC	2400	170	2400	5.5	6.7	6.5 U	10 U	7 J	2.9 J
METALS (UG/L)										
ARSENIC	10	10	10	10	1.5 J	1 J	0.52 J	0.63 J	4.6	5.1
BARIUM	2000	2000	670	2000	210	300	260	240	290	300
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.79 J	0.06 J	0.044 J	0.04 J
CHROMIUM	100	100	100	100	0.31 J	0.25 J	0.57 J	1 U	0.54 J	0.54 J
COPPER	1300	1000	13	1300	0.74 J	0.79 J	0.98 J	1 U	0.71 J	0.81 J
LEAD	15	2	14	15	0.73 J	1	0.63 J	0.26 J	2	2.1
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	5 U	0.69 U	1 U
ZINC	NC	2400	170	2400	6.9 J	9.4	10	4 J	2.7 J	4.7 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)										
2-METHYLNAPHTHALENE	NC	260	19	260	0.5 U	0.5 U	0.5 U	0.5 U	0.054 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	0.5 U	0.031 J	0.5 U	0.03 J	0.054 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	0.5 U	0.5 U	0.5 U	0.5 U	0.054 U	0.05 U
ANTHRACENE	NC	43	ID	43	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.051 J	0.06 J	0.11 U	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.1 J	0.5 U	0.11 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.041 J	0.5 U	0.11 U	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.22 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U
FLUORENE	NC	880	12	880	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.22 U	0.2 U
NAPHTHALENE	NC	520	11	520	0.5 U	0.5 U	0.5 U	0.04 J	0.054 U	0.05 U
PHENANTHRENE	NC	52	2	52	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U
PYRENE	NC	140	ID	140	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U

1 - For comparison only.

J - Estimated Concentration.

U - Below detection limit at detection limit shown.

D - Duplicate sample

Shaded cell indicates concentration greater than selected criterion.

bgs - Below ground surface.

GSI - Groundwater-surface water interface

ID - Insufficient data to develop criterion.

MCL - Maximum Contaminant Level.

NC - No criterion.

RBSL - Risk-Based Screening Level

TABLE 2

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR JUNE 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 2 OF 3

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW02						DAMW02R
					6/6/2011	9/14/2011	12/16/2011	12/16/2011-	3/6/2012	3/6/2012-D	6/25/2013
					3 13	3 13	3 13	3 13	3 13	3 13	3 13
DISSOLVED METALS (UG/L)											
ARSENIC	10	10	10	10	1 J	9	9.3	9.2	12	12	0.55 J
BARIUM	2000	2000	670	2000	200 J	150	110	100	87	89	100
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.058 J	0.046 J	0.2 U	0.2 U	0.1 U
CHROMIUM	100	100	100	100	0.47 J	0.45 J	0.36 J	0.37 J	1 U	1 U	0.79 U
COPPER	1300	1000	13	1300	0.42 J	0.16 J	1 U	0.28 J	1 U	1 U	1.3
LEAD	15	2	14	15	0.2 J	1 U	1 U	1 U	1 UJ	1 UJ	0.5 U
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	5 U	0.39 J	1.3 J	1.4 U
ZINC	NC	2400	170	2400	5 U	5 U	6.9 U	7.8 U	10 U	10 U	3.7 J
METALS (UG/L)											
ARSENIC	10	10	10	10	6.2	12	9.5	10	14	14	0.58 J
BARIUM	2000	2000	670	2000	150	160	110	110	86	84	110
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.73 J	0.054 J	0.1 J	0.11 J	0.042 J
CHROMIUM	100	100	100	100	0.33 J	0.51 J	0.39 J	0.38 J	1 U	1.3 U	0.98 J
COPPER	1300	1000	13	1300	1.2	0.29 J	0.19 J	0.39 J	1 U	1 U	1.3
LEAD	15	2	14	15	0.85 J	0.39 J	0.16 J	0.23 J	1 U	1 U	0.5 U
SELENIUM	50	50	5	50	1 J	1.5 J	5 U	5 U	5 U	0.55 J	1 U
ZINC	NC	2400	170	2400	3.9 J	6.4	8.6	10	7.6 J	3.2 J	2.8 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)											
2-METHYLNAPHTHALENE	NC	260	19	260	24 J	43	42	33	50	49	0.05 U
ACENAPHTHENE	NC	1300	38	1300	6 J	14	10	7.7 J	6.9	6.6	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	1.7 J	3.8 J	3.7 J	2.6 J	3.9 J	3.7 J	0.05 U
ANTHRACENE	NC	43	ID	43	3.8 J	4.8 J	3.1 J	2.2 J	6.3	4.6 J	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.28 J	1.3 J	1.2 J	10 U	0.92 J	0.72 J	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 UJ	1 J	10 U	10 U	5 U	5 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.05 J	12 U	10 U	10 U	0.41 J	5 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.1 J	12 U	10 U	10 U	5 U	5 U	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.52 J	1.5 J	1 J	0.81 J	0.92 J	0.82 J	0.1 U
FLUORENE	NC	880	12	880	3.5 J	13	24	19	21	21	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.2 U
NAPHTHALENE	NC	520	11	520	120	170	170	130	180	180	0.05 U
PHENANTHRENE	NC	52	2	52	8.8 J	11 J	11	8.3 J	12	12	0.1 U
PYRENE	NC	140	ID	140	0.39 J	1.5 J	1 J	10 U	0.92 J	0.82 J	0.1 U

1 - For comparison only.

J - Estimated Concentration.

U - Below detection limit at detection limit shown.

D - Duplicate sample

Shaded cell indicates concentration greater than selected criterion.

bgs - Below ground surface.

GSI - Groundwater-surface water interface

ID - Insufficient data to develop criterion.

MCL - Maximum Contaminant Level.

NC - No criterion.

RBSL - Risk-Based Screening Level

TABLE 2

**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR JUNE 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 3 OF 3**

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW03						DAMW04				
					6/6/2011	6/6/2011-D	9/14/2011	9/14/2011-D	12/16/2011	3/6/2012	6/6/2011	9/14/2011	12/16/2011	3/6/2012	6/25/2013
					3 13	3 13	3 13	3 13	3 13	3 13	3 13	3 13	3 13	3 13	
DISSOLVED METALS (UG/L)															
ARSENIC	10	10	10	10	2.7 J	2.7 J	4.3 J	4.1 J	1.3 J	0.71 J	3 J	3.6 J	1.2 J	0.84 J	1.9
BARIUM	2000	2000	670	2000	310 J	300 J	370	360	310	270	150 J	210	130	130	190
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.19 J	0.31
CHROMIUM	100	100	100	100	0.21 J	1 U	0.22 J	0.23 J	1 U	1 U	1 U	1 U	0.23 J	1 U	0.83 U
COPPER	1300	1000	13	1300	1 U	1 U	1 U	0.15 J	0.25 J	1 U	0.88 J	0.6 J	0.32 J	1 U	1.9
LEAD	15	2	14	15	1 U	1 U	1 U	1 U	1 U	1 UJ	0.44 J	0.45 J	0.17 J	2.8 J	3
SELENIUM	50	50	5	50	5 UJ	5 UJ	0.97 J	0.96 J	5 U	5 U	5 UJ	5 UJ	5 U	0.73 J	2.6
ZINC	NC	2400	170	2400	4.2 J	3.9 J	5.5	5 U	7.7 U	10 U	110	100	100	140	180
METALS (UG/L)															
ARSENIC	10	10	10	10	2.6 J	2.5 J	4.8 J	4.4 J	1.3 J	0.75 J	3 J	3.8 J	1.1 J	0.87 J	1.4
BARIUM	2000	2000	670	2000	290	290	370	340	300	270	150	210	130	130	190
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.37 U	1.1 J	0.051 J	0.2 U	0.2 U	0.2 U	0.091 J	0.25	0.34
CHROMIUM	100	100	100	100	0.29 J	0.27 J	0.24 J	0.24 J	0.22 J	1 U	0.36 J	1 U	1 U	1 U	0.71 J
COPPER	1300	1000	13	1300	0.77 J	1 U	0.3 J	0.37 J	0.39 J	1 U	2.6	1.8	0.64 J	1 U	1.4
LEAD	15	2	14	15	0.47 J	0.33 J	0.7 J	0.57 J	1.2	0.18 J	2.1	3.3	1.8	2.8	3.8
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 U	5 UJ	5 UJ	5 U	0.79 J	4.9
ZINC	NC	2400	170	2400	8.5 J	4.6 J	10	8.4	8.4	2 J	110 J	120	110	150	190
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)															
2-METHYLNAPHTHALENE	NC	260	19	260	0.07 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	1.6	1.6	2.6	2.9	1.5	1.6	0.05 J	0.03 J	0.5 U	0.5 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	0.05 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U
ANTHRACENE	NC	43	ID	43	0.22 J	0.19 J	0.23 J	0.23 J	0.092 J	0.13 J	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.072 J	0.051 J	0.041 J	0.051 J	0.5 U	0.5 U	0.19 J	0.5 U	0.062 J
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.052 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.24 J	0.5 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.22 J	0.5 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.082 J	0.5 U	0.5 U	0.27 J	0.5 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.22 J	0.5 U	0.052 J
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.14 J	0.5 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.2 J	0.15 J	0.27 J	0.23 J	0.11 J	0.11 J	0.5 U	0.5 U	0.04 J	0.5 U	0.1 U
FLUORENE	NC	880	12	880	0.36 J	0.27 J	0.19 J	0.28 J	0.13 J	0.13 J	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.14 J	0.5 U	0.5 U	0.14 J	0.5 U	0.2 U
NAPHTHALENE	NC	520	11	520	0.19 J	0.11 J	0.062 J	0.5 U	0.5 U	0.5 U	0.05 J	0.5 U	0.5 U	0.5 U	0.05 U
PHENANTHRENE	NC	52	2	52	1.2	1	1.4	1.5	0.6	0.67	0.05 J	0.5 U	0.5 U	0.5 U	0.1 U
PYRENE	NC	140	ID	140	0.15 J	0.13 J	0.23 J	0.24 J	0.1 J	0.082 J	0.04 J	0.5 U	0.061 J	0.5 U	0.1 U

1 - For comparison only.

J - Estimated Concentration.

U - Below detection limit at detection limit shown.

D - Duplicate sample

Shaded cell indicates concentration greater than selected criterion.

bgs - Below ground surface.

GSI - Groundwater-surface water interface

ID - Insufficient data to develop criterion.

MCL - Maximum Contaminant Level.

NC - No criterion.

RBSL - Risk-Based Screening Level

TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR JUNE 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 1 OF 3**

LOCATION SAMPLE DATE Appearance	DAMW01				DAMW01R
	6/6/2011	9/14/2011	12/16/2011	3/6/2012	6/25/2013
	clear	clear	clear	clear	clear

Purge Meter Measurements

pH (SU)	6.8	6.5	6.8	7.0	7.0
Specific Conductivity (mS/cm)	0.992	1.04	1.08	1.02	0.922
Temperature (°C)	18.4	20.3	9.5	7.0	19.3
Turbidity (NTU)	0.0	0.0	8.8	5.1	7.4
Dissolved Oxygen (mg/L)	0.0	0.26	0.0	2.08	0.38
ORP (mV)	-176	-158	-204	-98	-84

Field Test Kits

Dissolved Oxygen (mg/L)	NM	NM	NM	NM	0.9
Alkalinity (ppm)	NM	NM	NM	NM	375
Carbon Dioxide (ppm)	NM	NM	NM	NM	75
Ferrous Iron (ppm)	NM	NM	NM	NM	1.4
Sulfide (ppm)	NM	NM	NM	NM	0.05
Sulfate (ppm)	NM	NM	NM	NM	51

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR JUNE 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 2 OF 3**

LOCATION SAMPLE DATE Appearance	DAMW02				DAMW02R
	6/6/2011	9/14/2011	12/16/2011	3/6/2012	6/25/2013
	clear	clear	clear	clear w/black specks	clear

Purge Meter Measurements

pH (SU)	7.7	7.3	7.6	8.1	7.3
Specific Conductivity (mS/cm)	1.49	1.38	1.48	1.27	0.554
Temperature (°C)	12.5	19.0	10.4	8.8	20.1
Turbidity (NTU)	0.0	1.7	1.2	1.5	3.2
Dissolved Oxygen (mg/L)	0.0	0.37	0.0	1.55	1.51
ORP (mV)	-192	-297	-294	-255	43

Field Test Kits

Dissolved Oxygen (mg/L)	NM	NM	NM	NM	2.7
Alkalinity (ppm)	NM	NM	NM	NM	180
Carbon Dioxide (ppm)	NM	NM	NM	NM	26
Ferrous Iron (ppm)	NM	NM	NM	NM	0
Sulfide (ppm)	NM	NM	NM	NM	0
Sulfate (ppm)	NM	NM	NM	NM	31

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR JUNE 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 3 OF 3**

LOCATION SAMPLE DATE Appearance	DAMW03				DAMW04				
	6/6/2011	9/14/2011	12/16/2011	3/6/2012	6/6/2011	9/14/2011	12/16/2011	3/6/2012	6/25/2013
Appearance	clear	clear	clear	clear	clear	clear	clear	clear	clear
Purge Meter Measurements									
pH (SU)	7.2	6.7	6.5	7.2	7.3	6.7	6.7	7.1	6.9
Specific Conductivity (mS/cm)	0.925	0.99	1.06	0.992	0.694	0.863	0.71	0.664	0.772
Temperature (°C)	12.5	21.8	10.6	8.8	16.1	22.8	11.0	8.4	16.7
Turbidity (NTU)	0.7	1.3	4.5	0.5	1.7	0.0	3.6	0	0
Dissolved Oxygen (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.48
ORP (mV)	-107	-92	-74	-123	-53	-21	-24	-15	64
Field Test Kits									
Dissolved Oxygen (mg/L)	NM	NM	NM	NM	NM	NM	NM	NM	1
Alkalinity (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	400
Carbon Dioxide (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	60
Ferrous Iron (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	0.4
Sulfide (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	0
Sulfate (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	>80

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

FIGURE

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).



East Atwater Street

MW01

MW01R

MW02

MW02R

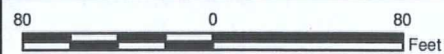
MW03

MW04

Detroit River

Legend

- Monitoring Well
- Abandoned Monitoring Well
- Property Boundary



DRAWN BY	DATE
J. ENGLISH	07/29/11
CHECKED BY	DATE
J. LOGAN	08/07/13
REVISED BY	DATE
S. PAXTON	08/07/13
SCALE AS NOTED	



MONITORING WELLS USCG ATWATER DETROIT, MICHIGAN

CONTRACT NUMBER 02435	CTO NUMBER ___
APPROVED BY ___	DATE ___
APPROVED BY ___	DATE ___
FIGURE NO. 1	REV 0

ATTACHMENT A
MONITORING WELL INSTALLATION FIELD FORMS



Tetra Tech

OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

WELL NO.: MW-01R

PROJECT	USCG Detroit Atwater	LOCATION	Detroit	DRILLER	J. Vertin
PROJECT NO.	112G02435	BORING	MW01	DRILLING METHOD	HSA
DATE BEGUN	6/11/13	DATE COMPLETED	6/11/13	DEVELOPMENT METHOD	Surge/Purge
FIELD GEOLOGIST	S. Hill				
GROUND ELEVATION	579.69	DATUM	NAVD 88		

ACAD: FORM_MWFM.dwg 07/20/99 INL

FLUSH MOUNT
SURFACE CASING
WITH LOCK

ELEVATION TOP OF RISER:	579.49
TYPE OF SURFACE SEAL:	Concrete
TYPE OF PROTECTIVE CASING:	Stainless Steel
I.D. OF PROTECTIVE CASING:	8"
DIAMETER OF HOLE:	8 1/4"
TYPE OF RISER PIPE:	PVC
RISER PIPE I.D.:	2"
TYPE OF BACKFILL/SEAL:	N/A
ELEVATION/DEPTH TOP OF SEAL:	578.69 / 1
TYPE OF SEAL:	Bentonite Pellets
ELEVATION/DEPTH TOP OF SAND:	577.69 / 2
ELEVATION/DEPTH TOP OF SCREEN:	576.69 / 3
TYPE OF SCREEN:	PVC
SLOT SIZE x LENGTH:	0.010 x 10 feet
TYPE OF SAND PACK:	10/20
DIAMETER OF HOLE IN BEDROCK:	N/A
ELEVATION / DEPTH BOTTOM OF SCREEN:	566.69 / 13
ELEVATION / DEPTH BOTTOM OF SAND:	566.69 / 13
ELEVATION/DEPTH BOTTOM OF HOLE:	566.69 / 13
BACKFILL MATERIAL BELOW SAND:	N/A



Tetra Tech

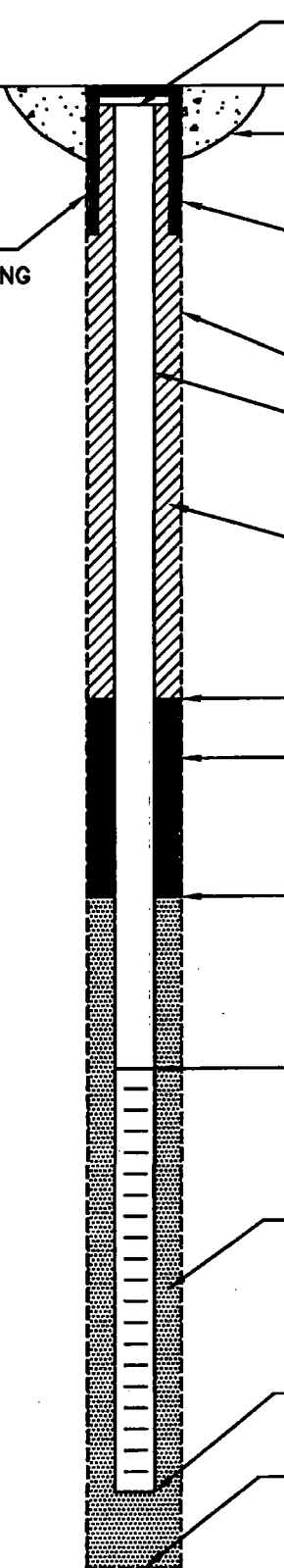
OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

WELL NO.: MW-02R

PROJECT	USCG Detroit Atwater	LOCATION	Detroit	DRILLER	J. Vertin
PROJECT NO.	112G02435	BORING	MW02	DRILLING METHOD	HSA
DATE BEGUN	6/11/13	DATE COMPLETED	6/11/13	DEVELOPMENT METHOD	Surge/Purge
FIELD GEOLOGIST	S. Hill				
GROUND ELEVATION	579.07	DATUM	NAVD 88		

ACAD:FORM_MWFM.dwg 07/29/99 INL

FLUSH MOUNT
SURFACE CASING
WITH LOCK



ELEVATION TOP OF RISER:	578.83
TYPE OF SURFACE SEAL:	Concrete
TYPE OF PROTECTIVE CASING:	Stainless Steel
I.D. OF PROTECTIVE CASING:	8"
DIAMETER OF HOLE:	8 1/4"
TYPE OF RISER PIPE:	PVC
RISER PIPE I.D.:	2"
TYPE OF BACKFILL/SEAL:	N/A
ELEVATION/DEPTH TOP OF SEAL:	578.07 / 1
TYPE OF SEAL:	Bentonite Pellets
ELEVATION/DEPTH TOP OF SAND:	577.07 / 2
ELEVATION/DEPTH TOP OF SCREEN:	576.07 / 3
TYPE OF SCREEN:	PVC
SLOT SIZE x LENGTH:	0.010 x 10 feet
TYPE OF SAND PACK:	10/20
DIAMETER OF HOLE IN BEDROCK:	N/A
ELEVATION / DEPTH BOTTOM OF SCREEN:	566.07 / 13
ELEVATION / DEPTH BOTTOM OF SAND:	566.07 / 13
ELEVATION/DEPTH BOTTOM OF HOLE:	566.07 / 13
BACKFILL MATERIAL BELOW SAND:	N/A

ATTACHMENT B
SAMPLING FIELD FORMS

**Event:** Quarterly GW Monitoring

Project Site Name: Detroit - Atwater

Project No.: 112G02435

[illegible]



FIELD ANALYTICAL LOG SHEET GEOCHEMICAL PARAMETERS

Tetra Tech-NUS, Inc.

Page 1 of 2

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MW01R-0613
Project No.:	112G02435	Sample Location:	MW01R
Sampled By:	TERRY ROJAHN	Duplicate:	<input type="checkbox"/>
Field Analyst:	TERRY ROJAHN	Blank:	<input type="checkbox"/>
Field Form Checked as per QA/QC Checklist (initials):	TR		

SAMPLING DATA:

Date:	6-25-13	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP (Eh)
Time:	1340	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	PPT (°C) TA	(+/- mv)
Method:	Peristaltic Pump	CLEAR	7.00	0.922	19.27	7.4	0.38	0.5	-84

SAMPLE COLLECTION/ANALYSIS INFORMATION:

ORP (Eh) (+/- mv)	Electrode Make & Model:
	Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen

Dissolved Oxygen:

Equipment: Chemetrics Test Kit

Concentration: 0.9 ppm

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-7501	0.9
<input checked="" type="checkbox"/>	1 to 12 ppm	K-7512	21

Analysis Time: 1509

Notes:

Alkalinity:

Equipment: Chemetrics Test Kit

Concentration: 375 ppm

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	10 to 100 ppm	K-9810	NO PINK
<input checked="" type="checkbox"/>	50 to 500 ppm	K-9815	375
<input checked="" type="checkbox"/>	100 to 1000 ppm	K-9820	375

Analysis Time: 1506

Filtered: ☐

Notes:

Carbon Dioxide:

Equipment: Chemetrics Test Kit

Concentration: 75 ppm

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	10 to 100 ppm	K-1910	75
<input type="checkbox"/>	100 to 1000 ppm	K-1920	—
<input type="checkbox"/>	250 to 2500 ppm	K-1925	—

Analysis Time: 1459

Notes:

Ferrous Iron (Fe²⁺):

Equipment: HACH IR-18C Color Wheel Range: 0 - 10 mg/L

Concentration: 1.4 ppm

Analysis Time: 1453

Filtered: ☐

Notes:

Sulfide (S²⁻):

Equipment: Chemetrics Test Kit

Concentration: 0.05 ppm

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-9510	0.05
<input type="checkbox"/>	1 to 10 ppm	K-9510	—

Analysis Time: 1519

Notes:



FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 2 of 2

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MW01R-0613
Project No.:	112G02435	Sample Location:	MW01R
Sampled By:	T. ROJAHN	Duplicate:	<input type="checkbox"/>
Field Analyst:	T. ROJAHN	Blank:	<input type="checkbox"/>

Sulfate (SO_4^{2-}):

Equipment: HACH DR/890 Range: 2-70 mg/L Concentration: 51 ppm

Program/Module: 92 Analysis Time: 1454

Notes: Filter: ☐

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet: ☒

Final calculated concentration is within the appropriate Range Used block: ☒

Title block on each page of form is initialized by person who performed this QA/QC Checklist: ☒

GROUNDWATER SAMPLE LOG SHEET



Tetra Tech Inc.

Event: Quarterly GW Monitoring

Project Site Name: Detroit - Atwater

Project No.: 112G02435

Sample ID: DA-MW02R-0613	Sampled By: <u>MARK MENGEL</u>
QA/QC Duplicate ID: <u>---</u>	Sample Date: 06/25/13
MS/MSD Collected: YES <u>(NO)</u>	Sample Time: <u>1350</u>

WELL INFORMATION:

Well ID: MW02R	Purge Date: 06/25/13
Well Diameter (in): 2'	Static Water Level (ft-BTOR): <u>2.67</u>
Top of Screen (ft-BTOR): 3'	PID Monitor Reading: NA
Bottom of Screen (ft-BTOR): 13'	Purge Method: Peristaltic Pump
Total Well Depth (ft-BTOR): 13'	Sample Method: Peristaltic Pump

EQUIPMENT INFORMATION:

Water Quality Instrument: <u>HORIBA U-52 (U64229X)</u>	Pump Controller: <u>U71952 X</u>
Turbidity Meter: <u>1. 1. 1.</u>	

PURGE DATA:

Time (Hrs)	H ₂ O Level (ft-BTOR)	Flow mL / min.	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1255	2.67	180	clear	7.15	0.587	3.20	11.6	19.65	188	0.3	-
1305	2.91	180	clear	7.20	0.510	2.22	8.4	20.43	133	0.2	-
1315	2.97	180	clear	7.31	0.524	1.74	5.4	20.61	72	0.3	-
1325	3.01	180	clear	7.41	0.550	1.97	3.2	20.53	52	0.3	-
1335	3.02	180	clear	7.29	0.553	1.58	4.3	20.29	46	0.3	-
1345	3.04	180	clear	7.24	0.554	1.51	3.2	20.13	43	0.3	-

FINAL PURGE / SAMPLE DATA:

Start Purge	End Purge	Total (min.)	Total Vol. (gal. / L.)	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1255	1345	50	92	7.29	0.554	1.51	3.2	20.13	43	0.3	--

ANALYSIS, PRESERVATION AND BOTTLE REQUIREMENTS:

Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
PAHs	<u>SEE LAB SPEC</u>	4°C	2	1 L	Amber Glass	✓
Total Metals	<u>SEE LAB SPEC</u>	HNO3	1	250 ml	Plastic	✓
Dissolved Metals	<u>SEE LAB SPEC</u>	HNO3	1	250 ml	Plastic	✓

OBSERVATIONS / NOTES:

Coordinates:	N	E	Signature(s): <u>Mark Mengel</u>



FIELD ANALYTICAL LOG SHEET GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 1 of 2

Project Site Name: <u>USCG Detroit</u>		Sample ID No.: <u>DA-MW02R-0613</u>	
Project No.: <u>112G02435</u>		Sample Location: <u>MW02R</u>	
Sampled By: <u>MARK MENDEL</u>		Duplicate: <input type="checkbox"/>	
Field Analyst: <u>TERRY ROJAHN</u>		Blank: <input type="checkbox"/>	
Field Form Checked as per QA/QC Checklist (initials): <u>TR</u>			

SAMPLING DATA:

Date: <u>6-25-13</u>	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP (Eh)
Time: <u>1350</u>	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	<u>ppt</u> <u>0.3</u>	(+/- mv)
Method: <u>Peristaltic Pump</u>	<u>CLEAR</u>	<u>7.29</u>	<u>0.554</u>	<u>20.13</u>	<u>3.2</u>	<u>1.51</u>		<u>43</u>

SAMPLE COLLECTION/ANALYSIS INFORMATION:

ORP (Eh) (+/- mv) _____ Electrode Make & Model: _____
Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen

Dissolved Oxygen:
Equipment: Chemetrics Test Kit Concentration: 2.7 ppm
Analysis Time: 1412

Range Used:	Range	Method	Concentration ppm
<input type="checkbox"/>	0 to 1 ppm	K-7501	—
<input checked="" type="checkbox"/>	1 to 12 ppm	K-7512	<u>2.7</u>

Notes: _____

Alkalinity:
Equipment: Chemetrics Test Kit Concentration: 180 ppm
Analysis Time: 1424

Range Used:	Range	Method	Concentration ppm
<input type="checkbox"/>	10 to 100 ppm	K-9810	—
<input checked="" type="checkbox"/>	50 to 500 ppm	K-9815	<u>180</u>
<input checked="" type="checkbox"/>	100 to 1000 ppm	K-9820	<u>180</u>

Notes: _____ Filtered: ☐

Carbon Dioxide:
Equipment: Chemetrics Test Kit Concentration: 26 ppm
Analysis Time: 1418

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	10 to 100 ppm	K-1910	<u>26</u>
<input type="checkbox"/>	100 to 1000 ppm	K-1920	—
<input type="checkbox"/>	250 to 2500 ppm	K-1925	—

Notes: _____

Ferrous Iron (Fe²⁺):
Equipment: HACH IR-18C Color Wheel Range: 0 - 10 mg/L Concentration: 0 ppm
Analysis Time: 1438

Notes: _____ Filtered: ☐

Sulfide (S²⁻):
Equipment: Chemetrics Test Kit Concentration: 0 ppm
Analysis Time: 1432

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-9510	<u>0</u>
<input type="checkbox"/>	1 to 10 ppm	K-9510	—

Notes: _____



FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 2 of 2

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MW02R-0613
Project No.:	112G02435	Sample Location:	MW02R
Sampled By:	MARK MENGEL	Duplicate:	<input type="checkbox"/>
Field Analyst:	TERRY ROJAHN	Blank:	<input type="checkbox"/>

Sulfate (SO_4^{2-}):

Equipment: HACH DR/890 Range: 2-70 mg/L Concentration: 31 ppm

Program/Module: 92 Analysis Time: 1437

Notes: Filter: ☐

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet: ☒

Final calculated concentration is within the appropriate Range Used block: ☒

Title block on each page of form is initialized by person who performed this QA/QC Checklist: ☒



Project No.: 112G02435

[illegible]



FIELD ANALYTICAL LOG SHEET GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 1 of 2

Project Site Name: <u>USCG Detroit</u>		Sample ID No.: <u>DA-MW048-0613</u>	
Project No.: <u>112G02435</u>		Sample Location: <u>MW04</u>	
Sampled By: <u>MARK MENGEL</u>		Duplicate: <input type="checkbox"/>	
Field Analyst: <u>TERRY RUJAHN</u>		Blank: <input type="checkbox"/>	
Field Form Checked as per QA/QC Checklist (initials): <u>TR</u>			

SAMPLING DATA:

Date: <u>6-25-13</u>	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP (Eh)
Time: <u>1540</u>	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	<u>PPT</u>	(+/- mv)
Method: <u>Peristaltic Pump</u>	<u>CLEAR</u>	<u>6.89</u>	<u>0.772</u>	<u>16.67</u>	<u>0</u>	<u>5.48</u>	<u>0.4</u>	<u>64</u>

SAMPLE COLLECTION/ANALYSIS INFORMATION:

ORP (Eh) (+/- mv)
Electrode Make & Model: _____
Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen

Dissolved Oxygen:
Equipment: Chemetrics Test Kit
Concentration: 1 ppm
Analysis Time: 1553

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-7501	<u>1</u>
<input checked="" type="checkbox"/>	1 to 12 ppm	K-7512	<u>1</u>

Notes: _____

Alkalinity:
Equipment: Chemetrics Test Kit
Concentration: 400 ppm
Analysis Time: 1549

Range Used:	Range	Method	Concentration ppm
<input type="checkbox"/>	10 to 100 ppm	K-9810	<u>—</u>
<input checked="" type="checkbox"/>	50 to 500 ppm	K-9815	<u>400</u>
<input checked="" type="checkbox"/>	100 to 1000 ppm	K-9820	<u>375</u>

Filtered: ☐

Notes: _____

Carbon Dioxide:
Equipment: Chemetrics Test Kit
Concentration: 60 ppm
Analysis Time: 1539

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	10 to 100 ppm	K-1910	<u>60</u>
<input type="checkbox"/>	100 to 1000 ppm	K-1920	<u>—</u>
<input type="checkbox"/>	250 to 2500 ppm	K-1925	<u>—</u>

Notes: _____

Ferrous Iron (Fe²⁺):
Equipment: HACH IR-18C Color Wheel Range: 0 - 10 mg/L
Concentration: 0.4 ppm
Analysis Time: 1604

Notes: _____

Sulfide (S²⁻):
Equipment: Chemetrics Test Kit
Concentration: 0 ppm
Analysis Time: 1603

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-9510	<u>0</u>
<input type="checkbox"/>	1 to 10 ppm	K-9510	<u>—</u>

Notes: _____



FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 2 of 2

Project Site Name: <u>USCG Detroit</u>		Sample ID No.: <u>DA-MW04-0613</u>	
Project No.: <u>112G02435</u>		Sample Location: <u>MW04</u>	
Sampled By: <u>MARK MENGEL</u>		Duplicate: <input type="checkbox"/>	
Field Analyst: <u>TERRY ROSAHN</u>		Blank: <input type="checkbox"/>	
Sulfate (SO_4^{2-}):			
Equipment: <u>HACH DR/890</u>	Range: <u>2-70 mg/L</u>	Concentration: <u>780</u> ppm	
Program/Module: <u>92</u>		Analysis Time: <u>1545</u>	
Notes:		Filter: <input type="checkbox"/>	
QA/QC Checklist:			
All data fields have been completed as necessary: <input checked="" type="checkbox"/>			
Correct measurement units are cited in the SAMPLING DATA block: <input checked="" type="checkbox"/>			
Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet: <input checked="" type="checkbox"/>			
Final calculated concentration is within the appropriate Range Used block: <input checked="" type="checkbox"/>			
Title block on each page of form is initialized by person who performed this QA/QC Checklist: <input checked="" type="checkbox"/>			

**ATTACHMENT C
DISPOSAL MANIFEST**

Please print or type. (Form designed for use on 12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number MIK 112 091 844	2. Page 1 of 1	3. Emergency Response Phone (313) 347-1300	4. Manifest Tracking Number 010302659 JJK		
5. Generator's Name and Mailing Address US COAST GUARD 1240 EAST 9TH STREET RM 2178 CLEVELAND, OH 44198			Generator's Site Address (if different than mailing address) 2000 EAST ATWATER STREET DETROIT, MI 48207				
Generator's Phone: (216) 802-8255							
6. Transporter 1 Company Name EQ INDUSTRIAL SERVICES			U.S. EPA ID Number MI0 000 263 871				
7. Transporter 2 Company Name			U.S. EPA ID Number				
8. Designated Facility Name and Site Address EQ DETROIT, INC. 1023 FREDERICK DETROIT, MI 48211			U.S. EPA ID Number MI0 000 901 500				
Facility's Phone: (313) 347-1300							
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No. Type		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON HAZARDOUS SOLID WASTE, NOT DOT NOT RCRA REGULATED		002	DM	01100	P	MTTE
	2. Non Hazardous Liquid Waste, Not Dot Not RCRA Regulated		002	Dm	00500	P	02DL
	3.						
	4.						
14. Special Handling Instructions and Additional Information 1. H138038DET / Non Haz IDW Solids 2x55 2. H138041DET / Non Haz IDW Liquids 2x55							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Officer's Printed/Typed Name Anthony V. Graziano			Signature <i>[Signature]</i>		Month Day Year 08 08 13		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name Aaron Work			Signature <i>[Signature]</i>		Month Day Year 08 08 13		
Transporter 2 Printed/Typed Name			Signature		Month Day Year		
18. Discrepancy							
18a. Discrepancy Indication Specie <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
Manifest Reference Number:							
18b. Alternate Facility (or Generator) U.S. EPA ID Number							
Facility's Phone:							
18c. Signature of Alternate Facility (or Generator) Month Day Year							
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. NONE		2. LHW		3.			
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 16a							
Printed/Typed Name John L. Lutzich			Signature <i>[Signature]</i>		Month Day Year 08 09 13		



CERTIFICATE OF MANAGEMENT

This Certificate is to verify that the wastes specified on the following manifest(s) have been properly received and will be properly managed to meet all applicable local, state, and federal regulations.

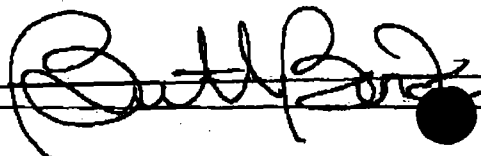
<i>Generator Name:</i>	US COAST GUARD	
<i>Manifest/BOL Number:</i>	010302659JJK	
<i>Approval Number(s):</i>	H138038DET	H138041DET

FACILITY NAME: EQ DETROIT, INC.
EPA ID#:MID980991566

ADDRESS: 1923 Frederick

PHONE NUMBER: 313-347-1300
FAX NUMBER: 313.923.3375

AUTHORIZED SIGNATURE

 on behalf of EQ Detroit

**ATTACHMENT D
LABORATORY REPORTS**



July 15, 2013

TETRA TECH NUS - Pittsburgh

Attn: Mr. Joe Logan

661 Anderson Drive, Foster Plaza 7

Pittsburgh, PA 15220

Project: USCG Atwater Facility

Dear Mr. Joe Logan,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

Work Order	Received	Description
1306471	06/27/2013	Laboratory Services

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

AClass DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/12-056-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003059); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#83658); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/48855); North Carolina DNRE (#659); Texas CEQ (#T104704495-13-3); Virginia DCLS (#460153/1622); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-12-00236).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications section of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary L. Wood", written over a light gray grid background.

Gary L. Wood
Project Chemist



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW01R-0613**
Lab Sample ID: **1306471-01**
Matrix: **Water**
Unit: **ug/L**
Dilution Factor: **1**
QC Batch: **1306734**

Work Order: **1306471**
Description: **Laboratory Services**
Sampled: **06/25/13 13:40**
Sampled By: **T.R.**
Received: **06/27/13 10:00**
Prepared: **07/01/13** By: **SMS9**
Analyzed: **07/11/13** By: **JLB**
Analytical Batch: **3G12006**

*Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.54U	0.54	0.035
208-96-8	Acenaphthylene	0.54U	0.54	0.018
120-12-7	Anthracene	0.54U	0.54	0.066
56-55-3	Benzo(a)anthracene	0.54U	0.54	0.049
50-32-8	Benzo(a)pyrene	0.54U	0.54	0.043
205-99-2	Benzo(b)fluoranthene	0.54U	0.54	0.062
207-08-9	Benzo(k)fluoranthene	0.54U	0.54	0.064
191-24-2	Benzo(g,h,i)perylene	0.54U	0.54	0.065
218-01-9	Chrysene	0.54U	0.54	0.049
53-70-3	Dibenz(a,h)anthracene	0.54U	0.54	0.12
206-44-0	Fluoranthene	0.54U	0.54	0.067
86-73-7	Fluorene	0.54U	0.54	0.044
193-39-5	Indeno(1,2,3-cd)pyrene	0.54U	0.54	0.086
91-57-6	2-Methylnaphthalene	0.54U	0.54	0.016
91-20-3	Naphthalene	0.54U	0.54	0.033
85-01-8	Phenanthrene	0.54U	0.54	0.046
129-00-0	Pyrene	0.54U	0.54	0.071

Surrogates:

Nitrobenzene-d5

86

Control Limits

40-110

2-Fluorobiphenyl

87

50-110

o-Terphenyl

94

50-135

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW01R-0613**
Lab Sample ID: **1306471-01**
Matrix: **Water**

Work Order: **1306471**
Description: **Laboratory Services**
Sampled: **06/25/13 13:40**
Sampled By: **T.R.**
Received: **06/27/13 10:00**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.0	1.0	0.18	ug/L	1	USEPA-6020A	07/11/13 10:52	MSM	1306716
Barium	300	5.0	0.68	ug/L	5	USEPA-6020A	07/09/13 10:56	KLV	1306716
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	07/09/13 09:47	KLV	1306716
Chromium	0.71 J	1.0	0.20	ug/L	1	USEPA-6020A	07/09/13 09:47	KLV	1306716
*Copper	0.73 J	1.0	0.13	ug/L	1	USEPA-6020A	07/09/13 09:47	KLV	1306716
Lead	0.56 J	1.0	0.15	ug/L	1	USEPA-6020A	07/09/13 09:47	KLV	1306716
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	07/03/13 16:12	CKD	1306738
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	07/09/13 13:52	KLV	1306716
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	07/09/13 09:47	KLV	1306716
Zinc	7.0 J	10	1.5	ug/L	1	USEPA-6020A	07/09/13 09:47	KLV	1306716

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW01R-0613**
Lab Sample ID: **1306471-01**
Matrix: **Water**

Work Order: **1306471**
Description: **Laboratory Services**
Sampled: **06/25/13 13:40**
Sampled By: **T.R.**
Received: **06/27/13 10:00**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	4.6	1.0	0.18	ug/L	1	USEPA-6020A	07/11/13 10:28	MSM	1306715
Barium	290	5.0	0.68	ug/L	5	USEPA-6020A	07/09/13 10:27	KLV	1306715
Cadmium	0.044 J	0.20	0.038	ug/L	1	USEPA-6020A	07/09/13 09:02	KLV	1306715
Chromium	0.54 J	1.0	0.20	ug/L	1	USEPA-6020A	07/09/13 09:02	KLV	1306715
*Copper	0.71 J	1.0	0.13	ug/L	1	USEPA-6020A	07/09/13 09:02	KLV	1306715
Lead	2.0	1.0	0.15	ug/L	1	USEPA-6020A	07/09/13 09:02	KLV	1306715
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	07/03/13 15:21	CKD	1306737
*Selenium	0.69 J	1.0	0.31	ug/L	1	USEPA-6020A	07/09/13 13:19	KLV	1306715
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	07/09/13 09:02	KLV	1306715
Zinc	2.7 J	10	1.5	ug/L	1	USEPA-6020A	07/09/13 09:02	KLV	1306715

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-MW02R-0613**
 Lab Sample ID: **1306471-02**
 Matrix: **Water**
 Unit: **ug/L**
 Dilution Factor: **1**
 QC Batch: **1306734**

Work Order: **1306471**
 Description: **Laboratory Services**
 Sampled: **06/25/13 13:50**
 Sampled By: **T.R.**
 Received: **06/27/13 10:00**
 Prepared: **07/01/13** By: **SMS9**
 Analyzed: **07/11/13** By: **JLB**
 Analytical Batch: **3G12006**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:	% Recovery	Control Limits
Nitrobenzene-d5	81	40-110
2-Fluorobiphenyl	83	50-110
o-Terphenyl	93	50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW02R-0613**
Lab Sample ID: **1306471-02**
Matrix: **Water**

Work Order: **1306471**
Description: **Laboratory Services**
Sampled: **06/25/13 13:50**
Sampled By: **T.R.**
Received: **06/27/13 10:00**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	0.55 J	1.0	0.18	ug/L	1	USEPA-6020A	07/11/13 10:53	MSM	1306716
Barium	100	5.0	0.68	ug/L	5	USEPA-6020A	07/09/13 11:00	KLV	1306716
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	07/09/13 09:50	KLV	1306716
Chromium	0.79 J	1.0	0.20	ug/L	1	USEPA-6020A	07/09/13 15:57	KLV	1306716
Copper	1.3	1.0	0.13	ug/L	1	USEPA-6020A	07/09/13 09:50	KLV	1306716
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	07/09/13 09:50	KLV	1306716
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	07/03/13 16:17	CKD	1306738
*Selenium	1.4	1.0	0.31	ug/L	1	USEPA-6020A	07/09/13 13:55	KLV	1306716
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	07/09/13 09:50	KLV	1306716
Zinc	3.7 J	10	1.5	ug/L	1	USEPA-6020A	07/09/13 09:50	KLV	1306716

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW02R-0613**
Lab Sample ID: **1306471-02**
Matrix: **Water**

Work Order: **1306471**
Description: **Laboratory Services**
Sampled: **06/25/13 13:50**
Sampled By: **T.R.**
Received: **06/27/13 10:00**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	0.58 J	1.0	0.18	ug/L	1	USEPA-6020A	07/11/13 10:29	MSM	1306715
Barium	110	5.0	0.68	ug/L	5	USEPA-6020A	07/09/13 10:30	KLV	1306715
Cadmium	0.042 J	0.20	0.038	ug/L	1	USEPA-6020A	07/09/13 09:05	KLV	1306715
Chromium	0.98 J	1.0	0.20	ug/L	1	USEPA-6020A	07/09/13 15:31	KLV	1306715
Copper	1.3	1.0	0.13	ug/L	1	USEPA-6020A	07/09/13 09:05	KLV	1306715
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	07/09/13 09:05	KLV	1306715
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	07/03/13 15:36	CKD	1306737
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	07/09/13 13:21	KLV	1306715
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	07/09/13 09:05	KLV	1306715
Zinc	2.8 J	10	1.5	ug/L	1	USEPA-6020A	07/09/13 09:05	KLV	1306715



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW04-0613**
Lab Sample ID: **1306471-03**
Matrix: **Water**
Unit: **ug/L**
Dilution Factor: **1**
QC Batch: **1306734**

Work Order: **1306471**
Description: **Laboratory Services**
Sampled: **06/25/13 15:40**
Sampled By: **T.R.**
Received: **06/27/13 10:00**
Prepared: **07/01/13** By: **SMS9**
Analyzed: **07/12/13** By: **JLB**
Analytical Batch: **3G12031**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.062J	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.052J	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:

Nitrobenzene-d5

88

40-110

2-Fluorobiphenyl

83

50-110

o-Terphenyl

89

50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW04-0613**
Lab Sample ID: **1306471-03**
Matrix: **Water**

Work Order: **1306471**
Description: **Laboratory Services**
Sampled: **06/25/13 15:40**
Sampled By: **T.R.**
Received: **06/27/13 10:00**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	1.9	1.0	0.18	ug/L	1	USEPA-6020A	07/11/13 10:54	MSM	1306716
*Barium	190	5.0	0.68	ug/L	5	USEPA-6020A	07/09/13 11:12	KLV	1306716
Cadmium	0.31	0.20	0.038	ug/L	1	USEPA-6020A	07/09/13 09:54	KLV	1306716
Chromium	0.83 J	1.0	0.20	ug/L	1	USEPA-6020A	07/09/13 09:54	KLV	1306716
Copper	1.9	1.0	0.13	ug/L	1	USEPA-6020A	07/09/13 09:54	KLV	1306716
Lead	3.0	1.0	0.15	ug/L	1	USEPA-6020A	07/09/13 09:54	KLV	1306716
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	07/03/13 16:22	CKD	1306738
Selenium	2.6	1.0	0.31	ug/L	1	USEPA-6020A	07/09/13 13:58	KLV	1306716
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	07/09/13 09:54	KLV	1306716
*Zinc	180	50	7.5	ug/L	5	USEPA-6020A	07/09/13 11:12	KLV	1306716

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW04-0613**
Lab Sample ID: **1306471-03**
Matrix: **Water**

Work Order: **1306471**
Description: **Laboratory Services**
Sampled: **06/25/13 15:40**
Sampled By: **T.R.**
Received: **06/27/13 10:00**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	1.4	1.0	0.18	ug/L	1	USEPA-6020A	07/11/13 10:29	MSM	1306715
*Barium	190	5.0	0.68	ug/L	5	USEPA-6020A	07/09/13 10:34	KLV	1306715
Cadmium	0.34	0.20	0.038	ug/L	1	USEPA-6020A	07/09/13 09:09	KLV	1306715
Chromium	0.71 J	1.0	0.20	ug/L	1	USEPA-6020A	07/09/13 09:09	KLV	1306715
Copper	1.4	1.0	0.13	ug/L	1	USEPA-6020A	07/09/13 09:09	KLV	1306715
Lead	3.8	1.0	0.15	ug/L	1	USEPA-6020A	07/09/13 09:09	KLV	1306715
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	07/03/13 15:41	CKD	1306737
Selenium	4.9	1.0	0.31	ug/L	1	USEPA-6020A	07/09/13 13:24	KLV	1306715
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	07/09/13 09:09	KLV	1306715
*Zinc	190	50	7.5	ug/L	5	USEPA-6020A	07/09/13 10:34	KLV	1306715

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-FD-062513**
 Lab Sample ID: **1306471-04**
 Matrix: **Water**
 Unit: **ug/L**
 Dilution Factor: **1**
 QC Batch: **1306734**

Work Order: **1306471**
 Description: **Laboratory Services**
 Sampled: **06/25/13 00:00**
 Sampled By: **T.R.**
 Received: **06/27/13 10:00**
 Prepared: **07/01/13** By: **SMS9**
 Analyzed: **07/11/13** By: **JLB**
 Analytical Batch: **3G12006**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates	% Recovery	Control Limits
Nitrobenzene-d5	86	40-110
2-Fluorobiphenyl	88	50-110
o-Terphenyl	97	50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-FD-062513**
Lab Sample ID: **1306471-04**
Matrix: **Water**

Work Order: **1306471**
Description: **Laboratory Services**
Sampled: **06/25/13 00:00**
Sampled By: **T.R.**
Received: **06/27/13 10:00**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	4.9	1.0	0.18	ug/L	1	USEPA-6020A	07/11/13 11:00	MSM	1306716
Barium	290	5.0	0.68	ug/L	5	USEPA-6020A	07/09/13 11:30	KLV	1306716
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	07/09/13 10:12	KLV	1306716
Chromium	0.86 J	1.0	0.20	ug/L	1	USEPA-6020A	07/09/13 10:12	KLV	1306716
*Copper	0.55 J	1.0	0.13	ug/L	1	USEPA-6020A	07/09/13 10:12	KLV	1306716
Lead	0.41 J	1.0	0.15	ug/L	1	USEPA-6020A	07/09/13 10:12	KLV	1306716
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	07/03/13 16:47	CKD	1306738
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	07/09/13 14:12	KLV	1306716
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	07/09/13 10:12	KLV	1306716
Zinc	2.9 J	10	1.5	ug/L	1	USEPA-6020A	07/09/13 10:12	KLV	1306716

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-FD-062513**
Lab Sample ID: **1306471-04**
Matrix: **Water**

Work Order: **1306471**
Description: **Laboratory Services**
Sampled: **06/25/13 00:00**
Sampled By: **T.R.**
Received: **06/27/13 10:00**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	5.1	1.0	0.18	ug/L	1	USEPA-6020A	07/11/13 10:33	MSM	1306715
Barium	300	5.0	0.68	ug/L	5	USEPA-6020A	07/09/13 10:52	KLV	1306715
Cadmium	0.040 J	0.20	0.038	ug/L	1	USEPA-6020A	07/09/13 09:27	KLV	1306715
Chromium	0.54 J	1.0	0.20	ug/L	1	USEPA-6020A	07/09/13 09:27	KLV	1306715
*Copper	0.81 J	1.0	0.13	ug/L	1	USEPA-6020A	07/09/13 09:27	KLV	1306715
Lead	2.1	1.0	0.15	ug/L	1	USEPA-6020A	07/09/13 09:27	KLV	1306715
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	07/03/13 15:56	CKD	1306737
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	07/09/13 13:38	KLV	1306715
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	07/09/13 09:27	KLV	1306715
Zinc	4.7 J	10	1.5	ug/L	1	USEPA-6020A	07/09/13 09:27	KLV	1306715

*See Statement of Data Qualifications



STATEMENT OF DATA QUALIFICATIONS

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The RL for this analysis was elevated due to insufficient sample volume or weight received.

Analysis: USEPA-8270C

Sample: 1306471-01

DA-MW01R-0613



STATEMENT OF DATA QUALIFICATIONS

Dissolved Metals by EPA 6000/7000 Series Methods

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte:	1306471-03	DA-MW04-0613	Barium
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Qualification: The % difference between the values of the isotopes monitored for this analyte exceeded 25%; the lower of the two results has been reported.

Analysis: USEPA-6020A

Sample/Analyte:	1306471-01	DA-MW01R-0613	Copper
	1306471-02	DA-MW02R-0613	Selenium
	1306471-04	DA-FD-062513	Copper

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is not qualified.

Analysis: USEPA-6020A

Sample/Analyte:	1306471-03	DA-MW04-0613	Zinc
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STATEMENT OF DATA QUALIFICATIONS

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte:	1306471-03	DA-MW04-0613	Barium
	1306471-03	DA-MW04-0613	Zinc

Qualification: The % difference between the values of the isotopes monitored for this analyte exceeded 25%; the lower of the two results has been reported.

Analysis: USEPA-6020A

Sample/Analyte:	1306471-01	DA-MW01R-0613	Copper
	1306471-01	DA-MW01R-0613	Selenium
	1306471-04	DA-FD-062513	Copper



TETRA TECH.NUS, INC.

CHAIN OF CUSTODY

NUMBER

No 1562

PAGE 1 OF 1

31-3

Cert 2 1306471

PROJECT NO: 112G02435		FACILITY: DETROIT-ATWATER		PROJECT MANAGER JOE LOGAN		PHONE NUMBER (412) 921-7090		LABORATORY NAME AND CONTACT: TRIMATRIX / GARY WOOD				
SAMPLERS (SIGNATURE) <i>Mark L. Morgan Terry R. Logan</i>				FIELD OPERATIONS LEADER TERRY ROLOHN		PHONE NUMBER (412) 337-0460		ADDRESS 5560 CORPORATE EXCHANGE CT SE				
				CARRIER/WAYBILL NUMBER FED EX # 8020 3157 8358				CITY, STATE GRAND RAPIDS, MI 49512				
STANDARD TAT <input checked="" type="checkbox"/> RUSH TAT <input type="checkbox"/> <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day				CONTAINER TYPE PLASTIC (P) or GLASS (G)		PRESERVATIVE USED						
DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	NO. OF CONTAINERS	TYPE OF ANALYSIS PAHS Total Metals Dissolved Metals Schedule			COMMENTS
6/25	1340	DA-MW01R-0613	MW 01R	-	-	GW	G	4	2	1	1	08
6/25	1350	DA-MW02R-0613	MW 02R	-	-	GW	G	4	2	1	1	↓
6/25	1540	DA-MW04-0613	MW 04	-	-	GW	G	6	4	1	1	09
6/25	0000	DA-FD-062513	QC	-	-	GW	G	4	2	1	1	08
* DISSOLVED METALS WERE FIELD FILTERED												

1. RELINQUISHED BY <i>Terry R. Logan</i>	DATE 06-26-13	TIME 1700	1. RECEIVED BY FED EX	DATE 06-26-13	TIME 1700
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY <i>[Signature]</i>	DATE 6/27/13	TIME 10:00

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY) 402R

ATTACHMENT E
DATA VALIDATION REPORT
(on pdf)

SEPTEMBER 2013 EVENT



TETRA TECH

661 Andersen Drive ■ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7000 ■ FAX (412) 921-4040 ■ www.tetrattech.com

PITT 11-13-002

November 6, 2013

Mr. James Cook
Environmental Engineer
USCG Civil Engineering Unit
1240 East Ninth St., Rm. 2179
Cleveland, OH 44199-2060

Reference: Contract Number HSCG83-08-D-3CL109
Task Order Number HSCG83-09-J-3CL358

**Subject: Groundwater Monitoring Report (September 2013 Event) for U.S. Coast Guard
Atwater Facility**

Dear Mr. Cook:

Tetra Tech, Inc. (Tt) is pleased to submit this quarterly Groundwater Monitoring Letter Report for the referenced Task Order for the United States Coast Guard (USCG) Atwater Facility in Detroit, Michigan. The objective of this portion of the project includes quarterly monitoring of the groundwater associated with the Atwater Facility (Figure 1) following the removal action conducted in April 2013. The sampling is being performed according to Modification 004 of the Task Order.

Four quarterly groundwater sampling events are planned. The first event was performed in June 2013. The second event, described in this report, was performed in September 2013. The next events are scheduled for December 2013 and March 2014. Field activities and groundwater analytical results for the September 2013 event are summarized in this report. The work was performed in accordance to the Field Sampling Plan - Soil and Groundwater (Tetra Tech, 2011) and the Quality Assurance Project Plan Addendum (Tetra Tech, 2011).

FIELD OPERATIONS

Groundwater Sampling

Depth-to-water measurements were obtained at the three monitoring wells and to the Detroit River on September 17, 2013. Water level depths in the wells ranged from 3.42 (MW02R) to 4.02 (MW01R) feet below top of casing (BTOC). Groundwater elevation data is provided in Table 1.

The groundwater level elevations in the three wells were lower (0.22 foot to 1.39 foot) during the September 2013 event as compared to the June 2013 event. The groundwater flow direction was toward the river.

On September 17, 2013, Tt collected groundwater samples from the three monitoring wells, MW01R, MW02R, and MW04. A duplicate sample was collected from MW01R. Samples were collected using low flow methods. Copies of the Groundwater Sample Log Sheets and Low Flow Purge Data Sheets are included in Attachment A. Following collection, the groundwater samples were shipped to Trimatrix Laboratories in Grand Rapids, Michigan for analysis of polynuclear aromatic hydrocarbons (PAHs) by EPA Method SW846 8310 and for total and dissolved Michigan 10 metals by EPA Methods 6020A and 7470A. Groundwater for dissolved metals analyses were filtered in the field using a 0.45 micron filter.

Purge water was drummed and was subsequently disposed of off-site by EarthSmart Environmental Solutions, LLC after confirming the results of the groundwater analyses (see Attachment B).

Groundwater samples were also analyzed for geochemical parameters using field kits and meters. The field kit analyses included dissolved oxygen (DO), alkalinity, carbon dioxide, ferrous iron, sulfide, and sulfate. The field meter measurements included pH and oxidation-reduction potential (ORP).

RESULTS

Laboratory Results

The analytical results for this event are summarized in Table 2. This table also includes the results from the previous sampling events. A copy of the laboratory summary report for this event is provided in Attachment C. The data validation report is included in Attachment D as a separate pdf.

The PAH analytical results were not significantly different from the 2011/2012 sampling events and the June 2013 event. However, unlike the 2011/2012 results from MW02, PAHs were not detected in the sample from MW02R during this event and the June 2013 event. Similarly, the PAH concentrations were less than detection limits in MW04 in this event, compared to the trace concentrations of two PAHs (benzo(a)anthracene and chrysene) detected during the June 2013 event. The concentrations of PAHs in the wells were less than the Michigan Department of Environmental Quality (MDEQ) residential exposure criteria.

At MW01R, the total metals concentrations and dissolved metals concentrations were similar to previous results at MW01, except for arsenic. The total arsenic concentrations (sample and duplicate) in the sample from MW01R were 3.2 µg/L and 3.5 µg/L, respectively, and the dissolved arsenic concentrations (sample and duplicate) were 2.8 µg/L and 3.1 µg/L, respectively. The range of total arsenic concentrations from the 2011/2012 samples from MW01 was 0.52 µg/L to 1.5 µg/L, and the range of dissolved arsenic concentrations was 0.6 µg/L to 0.95 µg/L. The September 2013 concentrations were slightly less than the June 2013 concentrations. Although the arsenic concentrations were elevated for this round, they are less than the United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) of 10 µg/L.

At MW02R, the total metals concentrations and dissolved metals concentrations were similar to previous results at MW02, except for arsenic. The total arsenic concentration in the sample from MW02R was 1.4 µg/L, and the dissolved arsenic concentration was 1.5 µg/L. The range of total arsenic concentrations from the 2011/2012 samples from MW02 was 6.2 µg/L to 14 µg/L, and the range of dissolved arsenic concentrations was 1J µg/L to 12 µg/L. The September 2013 arsenic concentrations were slightly greater than the June 2013 concentrations. The arsenic concentrations for this round are less than the USEPA MCL of 10 µg/L.

Total metals concentrations and dissolved metals concentrations in MW04 were generally similar to the previous results, except for arsenic. The total arsenic concentration in the sample was 7.3 µg/L, and the dissolved arsenic concentration was 7 µg/L. The range of total arsenic concentrations from the 2011/2012 samples and the June 2013 event was 0.87J µg/L to 3.8J µg/L, and the range of dissolved arsenic concentrations was 0.84J µg/L to 3.6J µg/L. The September 2013 arsenic concentrations were significantly greater than the June 2013 concentrations, but still less than the USEPA MCL of 10 µg/L.

Field Measurements

Groundwater samples were analyzed in the field using field kits and meters to evaluate the geochemistry and its effects on contaminant concentrations and the potential for biological activity. Samples were analyzed for DO, alkalinity, carbon dioxide, ferrous iron, sulfide, and sulfate with field kits, and pH and ORP were measured with field meters. These results are summarized on Table 3.

The results for MW01R suggest anaerobic biological activity. The DO was low, and the ORP was negative. The ORP result was similar to previous measurements from MW01. Alkalinity, carbon dioxide, and ferrous iron concentrations were relatively high, which are also typical of anaerobic biological activity. Sulfide was detected. The sulfate concentration was much less than the last event, and the pH was in the neutral range.

Many results from MW02R were similar to MW01R. The DO was still greater than 1 mg/L, but less than the last event. The ORP was negative compared to the positive result during the last event. The ORP results from previous measurements at MW02 were typically negative. The alkalinity concentration was greater than the result from MW01R, and the carbon dioxide concentration was approximately one third of the result from MW01R. The ferrous iron concentration was just detectable, and sulfide were detected which suggests the absence of anaerobic activity. The sulfate concentration was similar the previous result, and the pH was in the neutral range.

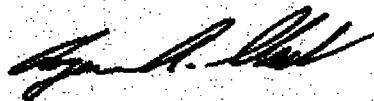
Many results from MW04 are similar to both MW01R and MW02R. The DO was low, and the ORP was negative (compared to the positive result from the last event). The ORP results from previous measurements at MW04 were negative. The alkalinity and carbon dioxide concentrations were high, similar to MW01R, but the ferrous iron concentration was about one half of the value from MW01R. No sulfide was detected, and the sulfate concentration was less than the concentration in MW02R but greater than the concentration in MW01R. The pH was in the neutral range, but higher than the last event. These results are more straightforward than the results from the last event. The negative ORP, low DO, and high ferrous iron concentration suggest anaerobic activity. However, like the last event, no sulfide was detected. The low sulfate concentration suggests less influence from off-site. As noted in the Removal Action Completion Report, the results of soil samples collected at the border of the site suggest that the adjacent property could be a source of organic contaminants.

CONCLUSIONS AND RECOMMENDATIONS

Concentrations of PAHs and metals were less than USEPA and MDEQ criteria during this sampling event. PAH concentrations were less than detection limits in all wells. The arsenic concentrations in MW01R and MW02R were similar to the last event, but the arsenic concentrations in MW04 increased significantly compared to the last event and the 2011/2012 results. The results of the geochemistry field measurements are still inconclusive, and the results from future events may allow for better evaluation. Quarterly monitoring will be continued as planned.

Should you have any questions, please contact the Project Manager, Mr. Joseph Logan at (412) 921-7231 or me at (412) 921-8415.

Very truly yours,



Roger A. Clark, Ph.D.
Program Manager

RAC

cc: file 112G02435
Joseph Logan

TABLES

TABLE 1

**WATER LEVEL MEASUREMENTS
QUARTERLY MONITORING REPORT FOR SEPTEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN**

Well ID	Ground Surface Elevation (feet, NAVD 88)	Top of Casing (feet, NAVD 88)	Screened Interval		6/6/2011		9/14/2011		12/16/2011		3/6/2012		6/25/2013		9/17/2013	
			Top (feet bgs)	Bottom (feet bgs)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)
MW01	579.58	579.53	3.0	13.0	2.22	577.31	1.70	577.83	1.00	578.53	1.43	578.10	ABAN	-	ABAN	-
MW01R	579.69	579.49	3.0	13.0	-	-	-	-	-	-	-	-	2.63	576.86	4.02	575.47
MW02	579.54	579.62	3.0	13.0	3.95	575.67	3.32	576.30	3.20	576.42	3.42	576.20	ABAN	-	ABAN	-
MW02R	579.07	578.83	3.0	13.0	-	-	-	-	-	-	-	-	2.67	576.16	3.42	575.41
MW03	579.33	579.00	3.0	13.0	3.89	575.11	3.94	575.06	4.08	574.92	4.26	574.74	ABAN	-	ABAN	-
MW04	578.68	578.11	3.0	13.0	3.18	574.93	3.05	575.06	2.49	575.62	3.30	574.81	3.58	574.53	3.80	574.31
River Level	578.69	NA	NA	NA	3.85	574.84	4.50	574.19	4.20	574.49	4.78	573.91	NM	NM	4.95	573.74

Notes:

bgs - below ground

ABAN - Abandoned.

BTOC - below top of casing.

NA - Not Applicable.

NAVD - North American Vertical Datum.

NM - Not measured.

TABLE 2

**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR SEPTEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 1 OF 4**

LOCATION	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW01				DAMW01R			
SAMPLE DATE					6/6/2011	9/14/2011	12/16/2011	3/6/2012	6/25/2013	6/25/2013-D	9/17/2013	9/17/2013-D
TOP OF SCREEN, FEET bgs					3	3	3	3	3	3	3	3
BOTTOM OF SCREEN, FEET bgs					13	13	13	13	13	13	13	13
DISSOLVED METALS (UG/L)												
ARSENIC	10	10	10	10	0.95 J	0.73 J	0.36 J	0.6 J	5	4.9	2.8	3.1
BARIUM	2000	2000	670	2000	190 J	300	260	250	300	290	300 J	320 J
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.14 J	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U
CHROMIUM	100	100	100	100	0.3 J	0.27 J	1 U	1 U	0.71 U	0.86 U	0.38 J	0.4 J
COPPER	1300	1000	13	1300	0.44 J	0.61 J	0.28 J	1 U	0.73 J	0.55 J	0.94 J	0.78 J
LEAD	15	2	14	15	0.17 J	0.18 J	1 U	1 UJ	0.56 J	0.41 J	0.5 U	0.5 U
SELENIUM	50	50	5	50	5 UJ	1.1 J	5 U	5 U	1 U	1 U	1 U	1 U
ZINC	NC	2400	170	2400	5.5	6.7	6.5 U	10 U	7 J	2.9 J	2.9 J	4.5 J
METALS (UG/L)												
ARSENIC	10	10	10	10	1.5 J	1 J	0.52 J	0.63 J	4.6	5.1	3.2	3.5
BARIUM	2000	2000	670	2000	210	300	260	240	290	300	310 J	310 J
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.79 J	0.06 J	0.044 J	0.04 J	0.039 J	0.1 U
CHROMIUM	100	100	100	100	0.31 J	0.25 J	0.57 J	1 U	0.54 J	0.54 J	0.5 J	0.46 J
COPPER	1300	1000	13	1300	0.74 J	0.79 J	0.98 J	1 U	0.71 J	0.81 J	0.9 J	0.42 J
LEAD	15	2	14	15	0.73 J	1	0.63 J	0.26 J	2	2.1	0.15 J	0.5 U
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	5 U	0.69 U	1 U	1 U	1 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.055 J	0.1 U
ZINC	NC	2400	170	2400	6.9 J	9.4	10	4 J	2.7 J	4.7 J	4.5 J	5.2 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)												
2-METHYLNAPHTHALENE	NC	260	19	260	0.5 U	0.5 U	0.5 U	0.5 U	0.054 U	0.05 U	0.05 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	0.5 U	0.031 J	0.5 U	0.03 J	0.054 U	0.05 U	0.05 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	0.5 U	0.5 U	0.5 U	0.5 U	0.054 U	0.05 U	0.05 U	0.05 U
ANTHRACENE	NC	43	ID	43	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.051 J	0.06 J	0.11 U	0.1 U	0.1 U	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.1 J	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.041 J	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.22 U	0.2 U	0.2 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U
FLUORENE	NC	880	12	880	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.22 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	NC	520	11	520	0.5 U	0.5 U	0.5 U	0.04 J	0.054 U	0.05 U	0.05 U	0.05 U
PHENANTHRENE	NC	52	2	52	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U
PYRENE	NC	140	ID	140	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U

1 - For comparison only.

J - Estimated Concentration.

U - Below detection limit at detection limit shown.

D - Duplicate sample

Shaded cell indicates concentration greater than selected criterion.

bgs - Below ground surface.

GSI - Groundwater-surface water interface

ID - Insufficient data to develop criterion.

MCL - Maximum Contaminant Level.

NC - No criterion.

RBSL - Risk-Based Screening Level

TABLE 2

**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR SEPTEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 2 OF 4**

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW02						DAMW02R	
					6/6/2011	9/14/2011	12/16/2011	12/16/2011-	3/6/2012	3/6/2012-D	6/25/2013	9/17/2013
					3 13	3 13	3 13	3 13	3 13	3 13	3 13	3 13
DISSOLVED METALS (UG/L)												
ARSENIC	10	10	10	10	1 J	9	9.3	9.2	12	12	0.55 J	1.5
BARIUM	2000	2000	670	2000	200 J	150	110	100	87	89	100	77 J
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.058 J	0.046 J	0.2 U	0.2 U	0.1 U	0.1 U
CHROMIUM	100	100	100	100	0.47 J	0.45 J	0.36 J	0.37 J	1 U	1 U	0.79 U	0.27 J
COPPER	1300	1000	13	1300	0.42 J	0.16 J	1 U	0.28 J	1 U	1 U	1.3	0.8 J
LEAD	15	2	14	15	0.2 J	1 U	1 U	1 U	1 UJ	1 UJ	0.5 U	0.5 U
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	5 U	0.39 J	1.3 J	1.4 U	1 U
ZINC	NC	2400	170	2400	5 U	5 U	6.9 U	7.8 U	10 U	10 U	3.7 J	5.7 J
METALS (UG/L)												
ARSENIC	10	10	10	10	6.2	12	9.5	10	14	14	0.58 J	1.4
BARIUM	2000	2000	670	2000	150	160	110	110	86	84	110	75 J
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.73 J	0.054 J	0.1 J	0.11 J	0.042 J	0.1 U
CHROMIUM	100	100	100	100	0.33 J	0.51 J	0.39 J	0.38 J	1 U	1.3 U	0.98 J	0.22 J
COPPER	1300	1000	13	1300	1.2	0.29 J	0.19 J	0.39 J	1 U	1 U	1.3	0.8 J
LEAD	15	2	14	15	0.85 J	0.39 J	0.16 J	0.23 J	1 U	1 U	0.5 U	0.5 U
SELENIUM	50	50	5	50	1 J	1.5 J	5 U	5 U	5 U	0.55 J	1 U	1 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	3.9 J	6.4	8.6	10	7.6 J	3.2 J	2.8 J	4.8 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)												
2-METHYLNAPHTHALENE	NC	260	19	260	24 J	43	42	33	50	49	0.05 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	6 J	14	10	7.7 J	6.9	6.6	0.05 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	1.7 J	3.8 J	3.7 J	2.6 J	3.9 J	3.7 J	0.05 U	0.05 U
ANTHRACENE	NC	43	ID	43	3.8 J	4.8 J	3.1 J	2.2 J	6.3	4.6 J	0.1 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.28 J	1.3 J	1.2 J	10 U	0.92 J	0.72 J	0.1 U	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 UJ	1 J	10 U	10 U	5 U	5 U	0.1 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.1 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.05 J	12 U	10 U	10 U	0.41 J	5 U	0.1 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.1 J	12 U	10 U	10 U	5 U	5 U	0.1 U	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.2 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.52 J	1.5 J	1 J	0.81 J	0.92 J	0.82 J	0.1 U	0.1 U
FLUORENE	NC	880	12	880	3.5 J	13	24	19	21	21	0.1 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.2 U	0.2 U
NAPHTHALENE	NC	520	11	520	120	170	170	130	180	180	0.05 U	0.05 U
PHENANTHRENE	NC	52	2	52	8.8 J	11 J	11	8.3 J	12	12	0.1 U	0.1 U
PYRENE	NC	140	ID	140	0.39 J	1.5 J	1 J	10 U	0.92 J	0.82 J	0.1 U	0.1 U

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J - Estimated Concentration.

U - Below detection limit at detection limit shown.

D - Duplicate sample

Shaded cell indicates concentration greater than selected criterion.

bgs - Below ground surface.

GSI - Groundwater-surface water interface

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MCL - Maximum Contaminant Level.

NC - No criterion.

RBSL - Risk-Based Screening Level

TABLE 2

**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR SEPTEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 3 OF 4**

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW03					
					6/6/2011	6/6/2011-D	9/14/2011	9/14/2011-D	12/16/2011	3/6/2012
					3 13	3 13	3 13	3 13	3 13	3 13
DISSOLVED METALS (UG/L)										
ARSENIC	10	10	10	10	2.7 J	2.7 J	4.3 J	4.1 J	1.3 J	0.71 J
BARIUM	2000	2000	670	2000	310 J	300 J	370	360	310	270
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHROMIUM	100	100	100	100	0.21 J	1 U	0.22 J	0.23 J	1 U	1 U
COPPER	1300	1000	13	1300	1 U	1 U	1 U	0.15 J	0.25 J	1 U
LEAD	15	2	14	15	1 U	1 U	1 U	1 U	1 U	1 UJ
SELENIUM	50	50	5	50	5 UJ	5 UJ	0.97 J	0.96 J	5 U	5 U
ZINC	NC	2400	170	2400	4.2 J	3.9 J	5.5	5 U	7.7 U	10 U
METALS (UG/L)										
ARSENIC	10	10	10	10	2.6 J	2.5 J	4.8 J	4.4 J	1.3 J	0.75 J
BARIUM	2000	2000	670	2000	290	290	370	340	300	270
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.37 U	1.1 J	0.051 J	0.2 U
CHROMIUM	100	100	100	100	0.29 J	0.27 J	0.24 J	0.24 J	0.22 J	1 U
COPPER	1300	1000	13	1300	0.77 J	1 U	0.3 J	0.37 J	0.39 J	1 U
LEAD	15	2	14	15	0.47 J	0.33 J	0.7 J	0.57 J	1.2	0.18 J
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ZINC	NC	2400	170	2400	8.5 J	4.6 J	10	8.4	8.4	2 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)										
2-METHYLNAPHTHALENE	NC	260	19	260	0.07 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ACENAPHTHENE	NC	1300	38	1300	1.6	1.6	2.6	2.9	1.5	1.6
ACENAPHTHYLENE	NC	52	ID	52	0.05 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ANTHRACENE	NC	43	ID	43	0.22 J	0.19 J	0.23 J	0.23 J	0.092 J	0.13 J
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.072 J	0.051 J	0.041 J	0.051 J
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.052 J	0.5 U	0.5 U	0.5 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.082 J
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
FLUORANTHENE	NC	210	1.6	210	0.2 J	0.15 J	0.27 J	0.23 J	0.11 J	0.11 J
FLUORENE	NC	880	12	880	0.36 J	0.27 J	0.19 J	0.28 J	0.13 J	0.13 J
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.14 J
NAPHTHALENE	NC	520	11	520	0.19 J	0.11 J	0.062 J	0.5 U	0.5 U	0.5 U
PHENANTHRENE	NC	52	2	52	1.2	1	1.4	1.5	0.6	0.67
PYRENE	NC	140	ID	140	0.15 J	0.13 J	0.23 J	0.24 J	0.1 J	0.082 J

1 - For comparison only.

J - Estimated Concentration.

U - Below detection limit at detection limit shown.

D - Duplicate sample

Shaded cell indicates concentration greater than selected criterion.

bgs - Below ground surface.

GSI - Groundwater-surface water interface

ID - Insufficient data to develop criterion.

MCL - Maximum Contaminant Level.

NC - No criterion.

RBSL - Risk-Based Screening Level

TABLE 2

**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR SEPTEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 4 OF 4**

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW04					
					6/6/2011 3 13	9/14/2011 3 13	12/16/2011 3 13	3/6/2012 3 13	6/25/2013 3 13	9/17/2013 3 13
					DISSOLVED METALS (UG/L)					
ARSENIC	10	10	10	10	3 J	3.6 J	1.2 J	0.84 J	1.9	7
BARIUM	2000	2000	670	2000	150 J	210	130	130	190	190 J
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.2 U	0.19 J	0.31	0.1 U
CHROMIUM	100	100	100	100	1 U	1 U	0.23 J	1 U	0.83 U	0.5 U
COPPER	1300	1000	13	1300	0.88 J	0.6 J	0.32 J	1 U	1.9	0.44 J
LEAD	15	2	14	15	0.44 J	0.45 J	0.17 J	2.8 J	3	1.2
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	0.73 J	2.6	1 U
ZINC	NC	2400	170	2400	110	100	100	140	180	94 J
METALS (UG/L)										
ARSENIC	10	10	10	10	3 J	3.8 J	1.1 J	0.87 J	1.4	7.3
BARIUM	2000	2000	670	2000	150	210	130	130	190	190 J
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.091 J	0.25	0.34	0.1 U
CHROMIUM	100	100	100	100	0.36 J	1 U	1 U	1 U	0.71 J	0.21 J
COPPER	1300	1000	13	1300	2.6	1.8	0.64 J	1 U	1.4	0.45 J
LEAD	15	2	14	15	2.1	3.3	1.8	2.8	3.8	2.4
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	0.79 J	4.9	1 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	110 J	120	110	150	190	99 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)										
2-METHYLNAPHTHALENE	NC	260	19	260	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	0.05 J	0.03 J	0.5 U	0.5 U	0.05 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U
ANTHRACENE	NC	43	ID	43	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.19 J	0.5 U	0.062 J	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.24 J	0.5 U	0.1 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.22 J	0.5 U	0.1 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.27 J	0.5 U	0.1 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.22 J	0.5 U	0.052 J	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.14 J	0.5 U	0.2 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.5 U	0.5 U	0.04 J	0.5 U	0.1 U	0.1 U
FLUORENE	NC	880	12	880	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.14 J	0.5 U	0.2 U	0.2 U
NAPHTHALENE	NC	520	11	520	0.05 J	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U
PHENANTHRENE	NC	52	2	52	0.05 J	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U
PYRENE	NC	140	ID	140	0.04 J	0.5 U	0.061 J	0.5 U	0.1 U	0.1 U

1 - For comparison only.

J - Estimated Concentration.

U - Below detection limit at detection limit shown.

D - Duplicate sample

Shaded cell indicates concentration greater than selected criterion.

bgs - Below ground surface.

GSI - Groundwater-surface water interface

ID - Insufficient data to develop criterion.

MCL - Maximum Contaminant Level.

NC - No criterion.

RBSL - Risk-Based Screening Level

TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR SEPTEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 1 OF 3**

LOCATION SAMPLE DATE Appearance	DAMW01				DAMW01R	
	6/6/11	9/14/11	12/16/11	3/6/12	6/25/13	9/17/13
	clear	clear	clear	clear	clear	clear

Purge Meter Measurements

pH (SU)	6.8	6.5	6.8	7.0	7.0	6.6
Specific Conductivity (mS/cm)	0.992	1.04	1.08	1.02	0.922	1.13
Temperature (°C)	18.4	20.3	9.5	7.0	19.3	19.3
Turbidity (NTU)	0.0	0.0	8.8	5.1	7.4	1.0
Dissolved Oxygen (mg/L)	0.0	0.26	0.0	2.08	0.38	0.39
ORP (mV)	-176	-158	-204	-98	-84	-122

Field Test Kits

Dissolved Oxygen (mg/L)	NM	NM	NM	NM	0.9	0.7
Alkalinity (ppm)	NM	NM	NM	NM	375	350
Carbon Dioxide (ppm)	NM	NM	NM	NM	75	85
Ferrous Iron (ppm)	NM	NM	NM	NM	1.4	2.3
Sulfide (ppm)	NM	NM	NM	NM	0.05	0.9
Sulfate (ppm)	NM	NM	NM	NM	51	8

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR SEPTEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 2 OF 3**

LOCATION SAMPLE DATE Appearance	DAMW02				DAMW02R	
	6/6/11	9/14/11	12/16/11	3/6/12	6/25/13	9/17/13
Appearance	clear	clear	clear	clear w/black specks	clear	clear
Purge Meter Measurements						
pH (SU)	7.7	7.3	7.6	8.1	7.3	7.8
Specific Conductivity (mS/cm)	1.49	1.38	1.48	1.27	0.554	0.564
Temperature (°C)	12.5	19.0	10.4	8.8	20.1	18.1
Turbidity (NTU)	0.0	1.7	1.2	1.5	3.2	0.0
Dissolved Oxygen (mg/L)	0.0	0.37	0.0	1.55	1.51	0.47
ORP (mV)	-192	-297	-294	-255	43	-28
Field Test Kits						
Dissolved Oxygen (mg/L)	NM	NM	NM	NM	2.7	1.5
Alkalinity (ppm)	NM	NM	NM	NM	180	500
Carbon Dioxide (ppm)	NM	NM	NM	NM	26	25
Ferrous Iron (ppm)	NM	NM	NM	NM	0	0.1
Sulfide (ppm)	NM	NM	NM	NM	0	0
Sulfate (ppm)	NM	NM	NM	NM	31	37

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR SEPTEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 3 OF 3**

LOCATION SAMPLE DATE Appearance	DAMW03				DAMW04					
	6/6/11	9/14/11	12/16/11	3/6/12	6/6/11	9/14/11	12/16/11	3/6/12	6/25/13	9/17/13
	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear

Purge Meter Measurements

pH (SU)	7.2	6.7	6.5	7.2	7.3	6.7	6.7	7.1	6.9	7.3
Specific Conductivity (mS/cm)	0.925	0.99	1.06	0.992	0.694	0.863	0.71	0.664	0.772	0.794
Temperature (°C)	12.5	21.8	10.6	8.8	16.1	22.8	11.0	8.4	16.7	20.8
Turbidity (NTU)	0.7	1.3	4.5	0.5	1.7	0.0	3.6	0	0	0
Dissolved Oxygen (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.48	0.47
ORP (mV)	-107	-92	-74	-123	-53	-21	-24	-15	64	-46

Field Test Kits

Dissolved Oxygen (mg/L)	NM	NM	NM	NM	NM	NM	NM	NM	1	0.7
Alkalinity (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	400	360
Carbon Dioxide (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	60	75
Ferrous Iron (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	0.4	1.4
Sulfide (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	0	0
Sulfate (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	>80	26

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

FIGURE

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).



Legend

- Monitoring Well
- Abandoned Monitoring Well
- Property Boundary

DRAWN BY	DATE
J. ENGLISH	07/29/11
CHECKED BY	DATE
J. LOGAN	08/07/13
REVISED BY	DATE
S. PAXTON	08/07/13

SCALE
AS NOTED



MONITORING WELLS USCG ATWATER DETROIT, MICHIGAN

CONTRACT NUMBER 02435	CTO NUMBER ___
APPROVED BY ___	DATE ___
APPROVED BY ___	DATE ___
FIGURE NO. 1	REV 0

ATTACHMENT A
SAMPLING FIELD FORMS



Project No.: 112G02435

[illegible]



FIELD ANALYTICAL LOG SHEET GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 2 of 3

Project Site Name: USCG Detroit		Sample ID No.: DA-MW01R-09L3	
Project No.: 112G02435		Sample Location: DA-MW01R	
Sampled By: _____		Duplicate: <input type="checkbox"/>	
Field Analyst: _____		Blank: <input type="checkbox"/>	
Field Form Checked as per QA/QC Checklist (initials): TR			

SAMPLING DATA:

Date: 09-17-13	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP (Eh)
Time: 1415	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	PPT (44)	(+/- mv)
Method: Peristaltic	CLEAR	6.60	1.13	19.29	1.0	0.39	0.6	-122

SAMPLE COLLECTION/ANALYSIS INFORMATION:

ORP (Eh) (+/- mv) Electrode Make & Model: _____
Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen

Dissolved Oxygen:
Equipment: Chemetrics Test Kit Concentration: 0.7 ppm

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-7501	0.7
<input type="checkbox"/>	1 to 12 ppm	K-7512	

Analysis Time: 1429

Notes: _____

Alkalinity:
Equipment: Chemetrics Test Kit Concentration: 350 ppm

Range Used:	Range	Method	Concentration ppm
<input type="checkbox"/>	10 to 100 ppm	K-9810	
<input checked="" type="checkbox"/>	50 to 500 ppm	K-9815	350
<input type="checkbox"/>	100 to 1000 ppm	K-9820	

Analysis Time: 1513 Filtered: ☐

Notes: _____

Carbon Dioxide:
Equipment: Chemetrics Test Kit Concentration: 85 ppm

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	10 to 100 ppm	K-1910	85
<input type="checkbox"/>	100 to 1000 ppm	K-1920	
<input type="checkbox"/>	250 to 2500 ppm	K-1925	

Analysis Time: 1517

Notes: _____

Ferrous Iron (Fe²⁺):
Equipment: HACH IR-18C Color Wheel Range: 0 - 10 mg/L Concentration: 2.3 ppm

Analysis Time: 1507 Filtered: ☐

Notes: _____

Sulfide (S²⁻):
Equipment: Chemetrics Test Kit Concentration: 0.9 ppm

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-9510	0.9
<input type="checkbox"/>	1 to 10 ppm	K-9510	

Analysis Time: 1442

Notes: _____



FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 3 of 3

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MWOIR-0913
Project No.:	112G02435	Sample Location:	DA-MWOIR
Sampled By:	T. ROJAHN	Duplicate:	<input type="checkbox"/>
Field Analyst:	TR	Blank:	<input type="checkbox"/>
Sulfate (SO_4^{2-}):			
Equipment:	HACH DR/890	Range:	0 - 0.70 mg/L
Program/Module:	92	Concentration:	8 ppm
Notes:		Analysis Time:	14:24
		Filter:	<input type="checkbox"/>
QA/QC Checklist:			
All data fields have been completed as necessary: <input checked="" type="checkbox"/>			
Correct measurement units are cited in the SAMPLING DATA block: <input checked="" type="checkbox"/>			
Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet: <input checked="" type="checkbox"/>			
Final calculated concentration is within the appropriate Range Used block: <input checked="" type="checkbox"/>			
Title block on each page of form is initialized by person who performed this QA/QC Checklist: <input checked="" type="checkbox"/>			



Event: Quarterly GW Monitoring
Project Site Name: Detroit - Atwater
Project No.: 112G02435

[illegible]



FIELD ANALYTICAL LOG SHEET GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 2 of 3

Project Site Name: USCG Detroit				Sample ID No.: DA-MW02R-0913			
Project No.: 112G02435				Sample Location: DA-MW02R			
Sampled By: MM				Duplicate: <input type="checkbox"/>			
Field Analyst: TR				Blank: <input type="checkbox"/>			
Field Form Checked as per QA/QC Checklist (initials): TR							

Date: 9-17-13	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP (Eh)
Time: 1420	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	ppt (44)	(+/- mv)
Method: Peristaltic	CLEAR	7.82	0.564	18.08	0	0.47	0.3	- 28

SAMPLE COLLECTION/ANALYSIS INFORMATION:

ORP (Eh) (+/- mv) _____ Electrode Make & Model: _____
Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen

Dissolved Oxygen:
Equipment: Chemetrics Test Kit Concentration: 1.5 ppm

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-7501	<u>> 1</u>
<input checked="" type="checkbox"/>	1 to 12 ppm	K-7512	<u>1.5</u>

Analysis Time: 1543

Notes: _____

Alkalinity:
Equipment: Chemetrics Test Kit Concentration: 200 ppm

Range Used:	Range	Method	Concentration ppm
<input type="checkbox"/>	10 to 100 ppm	K-9810	
<input checked="" type="checkbox"/>	50 to 500 ppm	K-9815	<u>200</u>
<input type="checkbox"/>	100 to 1000 ppm	K-9820	

Analysis Time: 1553

Filtered: ☐

Notes: _____

Carbon Dioxide:
Equipment: Chemetrics Test Kit Concentration: 25 ppm

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	10 to 100 ppm	K-1910	<u>25</u>
<input type="checkbox"/>	100 to 1000 ppm	K-1920	—
<input type="checkbox"/>	250 to 2500 ppm	K-1925	—

Analysis Time: 1558

Notes: _____

Ferrous Iron (Fe²⁺):
Equipment: HACH IR-18C Color Wheel Range: 0 - 10 mg/L Concentration: 0.1 ppm

Analysis Time: 1550

Notes: _____

Filtered: ☐

Sulfide (S²⁻):
Equipment: Chemetrics Test Kit Concentration: 0 ppm

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-9510	<u>0</u>
<input type="checkbox"/>	1 to 10 ppm	K-9510	

Analysis Time: 1542

Notes: _____



FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 3 of 3

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MK102R-0913
Project No.:	112G02435	Sample Location:	DA-MW02R
Sampled By:	TR MM	Duplicate:	<input type="checkbox"/>
Field Analyst:	TR	Blank:	<input type="checkbox"/>

Sulfate (SO_4^{2-}):

Equipment: HACH DR/890 Range: 0 - 0.70 mg/L Concentration: 37 ppm

Program/Module: 92 Analysis Time: 1534

Notes: Filter: ☐

QA/QC Checklist:

All data fields have been completed as necessary: ☒

Correct measurement units are cited in the SAMPLING DATA block: ☒

Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet: ☒

Final calculated concentration is within the appropriate *Range Used* block: ☒

Title block on each page of form is initialized by person who performed this QA/QC Checklist: ☒

GROUNDWATER SAMPLE LOG SHEET



Tetra Tech Inc.

Event: Quarterly GW Monitoring

Project Site Name: Detroit - Atwater

Project No.: 112G02435

Sample ID: DA-MW04-0913	Sampled By: MARK MENDEL
QA/QC Duplicate ID:	Sample Date: 09/17/13
MS/MSD Collected: YES NO	Sample Time: 1545

WELL INFORMATION:	
Well ID: MW04R MW04	Purge Date: 09/17/13
Well Diameter (in): 2"	Static Water Level (ft-BTOR):
Top of Screen (ft-BTOR): 3'	PID Monitor Reading: 3.80
Bottom of Screen (ft-BTOR): 13'	Purge Method: Peristaltic Pump
Total Well Depth (ft-BTOR): 13'	Sample Method: Peristaltic Pump

EQUIPMENT INFORMATION:	
Water Quality Instrument: HORIBA U22 - U58312X	Pump Controller: PELASUS - U27112X
Turbidity Meter: HORIBA U22 - U58312X	

PURGE DATA:											
Time (Hrs)	H ₂ O Level (ft-BTOR)	Flow mL / min.	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% ppt)	Other
1440	3.80	200	cloudy	7.62	0.786	1.19	10.5	19.58	-26	0.4	
1450	4.17	200	clear	7.46	0.786	0.71	4.7	20.20	-30	0.4	
1500	4.40	200	clear	7.30	0.787	0.58	0	20.72	-37	0.4	
1510	4.53	200	clear	7.26	0.793	0.53	0	20.89	-42	0.4	
1520	4.68	200	clear	7.27	0.793	0.50	0	21.02	-43	0.4	
1530	4.77	200	clear	7.29	0.793	0.48	0	21.04	-44	0.4	
1540	4.85	200	clear	7.29	0.794	0.47	0	20.85	-46	0.4	

FINAL PURGE / SAMPLE DATA:											
Start Purge	End Purge	Total (min.)	Total Vol. (gal. / L.)	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% ppt)	Other
1440	1540	60	12.0	7.29	0.794	0.47	0	20.85	-46	0.4	

ANALYSIS, PRESERVATION AND BOTTLE REQUIREMENTS						
Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
PAHs	See lab Spec	4° C	2	1 L	Amber Glass	✓
Total Metals	See lab Spec	HN03	1	250 ml	Plastic	✓
Dissolved Metals	See lab Spec	HN03	1	250 ml	Plastic	✓

OBSERVATIONS / NOTES:		
Coordinates:	N E	Signature(s): Mark H. Mengel



FIELD ANALYTICAL LOG SHEET GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 2 of 3

Project Site Name: USCG Detroit		Sample ID No.: DA-MW04-0913	
Project No.: 112G02435		Sample Location: DA-MW04	
Sampled By: MM		Duplicate: <input type="checkbox"/>	
Field Analyst: TR		Blank: <input type="checkbox"/>	
Field Form Checked as per QA/QC Checklist (initials):		TR	

SAMPLING DATA:

Date: 9-17-13	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP (Eh)
Time: 1545	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	ppt mg	(+/- mv)
Method: Peristaltic	CLEAR	7.29	0.794	20.85	0	0.47	0.4	-46

SAMPLE COLLECTION/ANALYSIS INFORMATION:

ORP (Eh) (+/- mv) _____ Electrode Make & Model: _____
Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen

Dissolved Oxygen:
Equipment: Chemetrics Test Kit
Concentration: 0.7 ppm
Analysis Time: 1615

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-7501	<u>0.7</u>
<input type="checkbox"/>	1 to 12 ppm	K-7512	

Notes: _____

Alkalinity:
Equipment: Chemetrics Test Kit
Concentration: 360 ppm
Analysis Time: 1608
Filtered: ☐

Range Used:	Range	Method	Concentration ppm
<input type="checkbox"/>	10 to 100 ppm	K-9810	
<input type="checkbox"/>	50 to 500 ppm	K-9815	
<input checked="" type="checkbox"/>	100 to 1000 ppm	K-9820	<u>360</u>

Notes: _____

Carbon Dioxide:
Equipment: Chemetrics Test Kit
Concentration: 75 ppm
Analysis Time: 1624
Filtered: ☐

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	10 to 100 ppm	K-1910	<u>75</u>
<input type="checkbox"/>	100 to 1000 ppm	K-1920	
<input type="checkbox"/>	250 to 2500 ppm	K-1925	

Notes: _____

Ferrous Iron (Fe²⁺):
Equipment: HACH IR-18C Color Wheel Range: 0 - 10 mg/L
Concentration: 1.4 ppm
Analysis Time: 1631
Filtered: ☐

Notes: _____

Sulfide (S²⁻):
Equipment: Chemetrics Test Kit
Concentration: 0 ppm
Analysis Time: 1625
Filtered: ☐

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-9510	
<input type="checkbox"/>	1 to 10 ppm	K-9510	

Notes: _____



FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 3 of 3

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MW04-09B
Project No.:	112G02435	Sample Location:	DA-MW04
Sampled By:		Duplicate:	<input type="checkbox"/>
Field Analyst:		Blank:	<input type="checkbox"/>
Sulfate (SO_4^{2-}):			
Equipment:	HACH DR/890	Range:	0 - 0.70 mg/L
Program/Module:	92	Concentration:	26 ppm
		Analysis Time:	1616
Notes:		Filter: <input type="checkbox"/>	
QA/QC Checklist:			
All data fields have been completed as necessary: <input checked="" type="checkbox"/>			
Correct measurement units are cited in the SAMPLING DATA block: <input checked="" type="checkbox"/>			
Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet: <input checked="" type="checkbox"/>			
Final calculated concentration is within the appropriate Range Used block: <input checked="" type="checkbox"/>			
Title block on each page of form is initialized by person who performed this QA/QC Checklist: <input checked="" type="checkbox"/>			

TUESDAY

112606430

13

9/17/13 DETROIT - AT WATER

0615 TR LEFT FOR MM RES.

0700 MM + TR LEAVE FOR DETROIT

1200 PICK UP KEY AND GO TO SITE

1220 Collected A ROUND of WATER levels

DA-MWOIR-0913 - 4.02

DA-MWO2R-0913 - 3.42

DA-MW04-0913 - 3.80

SG @ SLIP - 4.95

SAMPLE ID	START PURGE	END PURGE	SAMPLE TIME	Comments
DA-MWOIR-0913	1315	1410	1415	(TR)
DA-FD-091713	"	"	0000	DUP FROM DA-MWOIR
DA-MWO2R-0913	1315	1405	1420	(MM)
DA-MW04-0913	1440	1540	1545	(MM) Collect MS/MSD

1700 Hrs - FINISH CLEAN UP @ SITE

1710 HRS - ARRIVE at USCG GATE ON
MT Elliot St - CLOSED will
RETURN KEY tomorrow VIA
FED EX. - START TRAVEL to PIT.

1723 Hrs - GAS SUV

Terry Paul 9-17-13

9/27/13 (Cont)

HUMIDITY
ID

464229X

458312X (HUM)

CAL	TEMP	pH	CON	mg/L DO	TURB
PRE	16.83	4.30	4.63	10.40	0.0
POST	16.83	4.00	4.49	10.44	0.0
PRE	16.21	3.61	4.89	10.14	2.3
POST	16.45	4.00	4.48	10.80	0.0

Ty Aguil 9-17-13

9-17-13 (CONT)

2210 HRS - DROP OFF MM @ Residence

2218 HRS - GAS SUV

2250 HRS - TR ARRIVED HOME

2308 HRS - DROP OFF SUV @ AVIS

PIT AIRPORT

2320 HRS - RETURN HOME

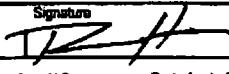

END

Ty Aguil 9-17-13

**ATTACHMENT B
DISPOSAL MANIFEST**

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number MIK 112 091 844	2. Page 1 of 1	3. Emergency Response Phone (313) 347-1300	4. Manifest Tracking Number 010270023 JJK	
5. Generator's Name and Mailing Address US COAST GUARD 1240 EAST 9TH STREET RM 2179 CLEVELAND, OH 44198		Generator's Site Address (if different than mailing address) 2680 EAST ATWATER STREET DETROIT, MI 48207				
Generator's Phone: (216) 802-6255						
6. Transporter 1 Company Name EQ INDUSTRIAL SERVICES		U.S. EPA ID Number MI0 000 263 871				
7. Transporter 2 Company Name		U.S. EPA ID Number				
8. Designated Facility Name and Site Address EQ DETROIT, INC. 1825 FREDERICK DETROIT, MI 48211		U.S. EPA ID Number MI0 980 991 588				
Facility's Phone: (313) 347-1300						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
1.	Non Hazardous Liquid Waste, Not Dot Not RCRA Regulated	001	DM	00120	P	029L
2.						
3.						
4.						
14. Special Handling Instructions and Additional Information 1. H13041DET / Non Haz IDW Liquids						
15. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator/Offeror's Printed/Typed Name Brian Hall		Signature 		Month Day Year 10 21 13		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____						
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name Timothy Curl		Signature 		Month Day Year 10 21 13		
Transporter 2 Printed/Typed Name		Signature		Month Day Year		
18. Discrepancy						
18a. Discrepancy Indication Spec <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number: _____						
18b. Alternate Facility (or Generator) U.S. EPA ID Number						
Facility's Phone: _____						
18c. Signature of Alternate Facility (or Generator) Month Day Year						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1.	2.	3.	4.			
LW						
20. Designated Facility Owner or Operator. Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a						
Printed/Typed Name		Signature		Month Day Year		



CERTIFICATE OF MANAGEMENT

This Certificate is to verify that the wastes specified on the following manifest(s) have been properly received and will be properly managed to meet all applicable local, state, and federal regulations.

<i>Generator Name:</i>	US COAST GUARD	
<i>Manifest/BOL Number:</i>	010270023JJK	
<i>Approval Number(s):</i>	H138041DET	

FACILITY NAME: EQ DETROIT, INC.

EPA ID#:MID980991566

ADDRESS: 1923 Frederick

PHONE NUMBER: 313-347-1300

FAX NUMBER: 313.923.3375

AUTHORIZED SIGNATURE:

Barbara Berens on behalf of EQ Detroit

**ATTACHMENT C
LABORATORY REPORTS**



October 03, 2013

TETRA TECH NUS - Pittsburgh

Attn: Mr. Joe Logan

661 Anderson Drive, Foster Plaza 7

Pittsburgh, PA 15220

Project: USCG Atwater Facility

Dear Mr. Joe Logan,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

Work Order	Received	Description
1309323	09/19/2013	Laboratory Services

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

ACCLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/12-056-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003059); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#83658); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/48855); North Carolina DNRE (#659); Texas CEQ (#T104704495-13-3); Virginia DCLS (#460153/1622); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-12-00236).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications and Project Technical Narrative sections of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary L. Wood", written over a light gray grid background.

Gary L. Wood
Project Chemist



PROJECT TECHNICAL NARRATIVE(s)

Dissolved Metals by EPA 6000/7000 Series Methods

Narrative: The % difference between the values of the isotopes monitored for this analyte exceeded 25%; the lower of the two results has been reported.

Analysis: USEPA-6020A

Sample/Analyte: 1309323-01 DA-MW01R-0913

Selenium

Narrative: This analyte was not present in this sample at a concentration greater than 100 times the MDL, therefore serial dilution is not required.

Analysis: USEPA-6020A

Sample/Analyte: 1309323-03 DA-MW04-0913

Arsenic

1309323-03 DA-MW04-0913

Selenium



PROJECT TECHNICAL NARRATIVE(s)

Total Metals by EPA 6000/7000 Series Methods

Narrative: The % difference between the values of the isotopes monitored for this analyte exceeded 25%; the lower of the two results has been reported.

Analysis: USEPA-6020A

Sample/Analyte: 1309323-04 DA-FD091713

Copper

Narrative: This analyte was not present in this sample at a concentration greater than 100 times the MDL, therefore serial dilution is not required.

Analysis: USEPA-6020A

Sample/Analyte: 1309323-03 DA-MW04-0913

Arsenic



STATEMENT OF DATA QUALIFICATIONS

Dissolved Metals by EPA 6000/7000 Series Methods

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte: 1309323-03	DA-MW04-0913	Barium
1309323-03	DA-MW04-0913	Zinc



STATEMENT OF DATA QUALIFICATIONS

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte:	1309323-03	DA-MW04-0913	Barium
	1309323-03	DA-MW04-0913	Zinc



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW01R-0913**
Lab Sample ID: **1309323-01**
Matrix: **Water**
Unit: **ug/L**
Dilution Factor: **1**
QC Batch: **1309927**

Work Order: **1309323**
Description: **Laboratory Services**
Sampled: **9/17/13 14:15**
Sampled By: **Mark Mengel**
Received: **9/19/13 10:00**
Prepared: **9/20/13 10:20** By: **JTS**
Analyzed: **9/27/13 17:21** By: **JLB**
Analytical Batch: **3I30014**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:

Nitrobenzene-d5

% Recovery

74

Control Limits

40-110

2-Fluorobiphenyl

70

50-110

o-Terphenyl

90

50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW01R-0913**
Lab Sample ID: **1309323-01**
Matrix: **Water**

Work Order: **1309323**
Description: **Laboratory Services**
Sampled: **9/17/13 14:15**
Sampled By: **Mark Mengel**
Received: **9/19/13 10:00**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	2.8	1.0	0.18	ug/L	1	USEPA-6020A	09/30/13 12:47	KLV	1310019
Barium	300	5.0	0.68	ug/L	5	USEPA-6020A	09/30/13 13:46	KLV	1310019
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	09/30/13 12:47	KLV	1310019
Chromium	0.38 J	1.0	0.20	ug/L	1	USEPA-6020A	09/30/13 12:47	KLV	1310019
Copper	0.94 J	1.0	0.13	ug/L	1	USEPA-6020A	09/30/13 12:47	KLV	1310019
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	09/30/13 12:47	KLV	1310019
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	10/02/13 15:40	DSC	1310251
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	09/30/13 12:47	KLV	1310019
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	09/30/13 12:47	KLV	1310019
Zinc	2.9 J	10	1.5	ug/L	1	USEPA-6020A	09/30/13 12:47	KLV	1310019



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW01R-0913**
Lab Sample ID: **1309323-01**
Matrix: **Water**

Work Order: **1309323**
Description: **Laboratory Services**
Sampled: **9/17/13 14:15**
Sampled By: **Mark Mengel**
Received: **9/19/13 10:00**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	3.2	1.0	0.18	ug/L	1	USEPA-6020A	09/30/13 12:03	KLV	1310018
Barium	310	5.0	0.68	ug/L	5	USEPA-6020A	09/30/13 13:26	KLV	1310018
Cadmium	0.039 J	0.20	0.038	ug/L	1	USEPA-6020A	09/30/13 12:03	KLV	1310018
Chromium	0.50 J	1.0	0.20	ug/L	1	USEPA-6020A	09/30/13 12:03	KLV	1310018
Copper	0.90 J	1.0	0.13	ug/L	1	USEPA-6020A	09/30/13 12:03	KLV	1310018
Lead	0.15 J	1.0	0.15	ug/L	1	USEPA-6020A	09/30/13 12:03	KLV	1310018
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	10/02/13 14:44	DSC	1310250
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	10/01/13 09:32	KLV	1310018
Sliver	0.055 J	0.20	0.037	ug/L	1	USEPA-6020A	09/30/13 12:03	KLV	1310018
Zinc	4.5 J	10	1.5	ug/L	1	USEPA-6020A	09/30/13 12:03	KLV	1310018



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW02R-0913**
Lab Sample ID: **1309323-02**
Matrix: **Water**
Unit: **ug/L**
Dilution Factor: **1**
QC Batch: **1309927**

Work Order: **1309323**
Description: **Laboratory Services**
Sampled: **9/17/13 14:20**
Sampled By: **Mark Mengel**
Received: **9/19/13 10:00**
Prepared: **9/20/13 10:20** By: **JTS**
Analyzed: **9/27/13 17:57** By: **JLB**
Analytical Batch: **3I30014**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:

Nitrobenzene-d5

% Recovery

84

Control Limits

40-110

2-Fluorobiphenyl

84

50-110

o-Terphenyl

94

50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW02R-0913**
Lab Sample ID: **1309323-02**
Matrix: **Water**

Work Order: **1309323**
Description: **Laboratory Services**
Sampled: **9/17/13 14:20**
Sampled By: **Mark Mengel**
Received: **9/19/13 10:00**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	1.5	1.0	0.18	ug/L	1	USEPA-6020A	09/30/13 12:50	KLV	1310019
Barium	77	1.0	0.14	ug/L	1	USEPA-6020A	09/30/13 12:50	KLV	1310019
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	09/30/13 12:50	KLV	1310019
Chromium	0.27 J	1.0	0.20	ug/L	1	USEPA-6020A	09/30/13 12:50	KLV	1310019
Copper	0.80 J	1.0	0.13	ug/L	1	USEPA-6020A	09/30/13 12:50	KLV	1310019
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	09/30/13 12:50	KLV	1310019
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	10/02/13 15:46	DSC	1310251
Selenium	0.45 J	1.0	0.31	ug/L	1	USEPA-6020A	09/30/13 12:50	KLV	1310019
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	09/30/13 12:50	KLV	1310019
Zinc	5.7 J	10	1.5	ug/L	1	USEPA-6020A	09/30/13 12:50	KLV	1310019



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW02R-0913**
Lab Sample ID: **1309323-02**
Matrix: **Water**

Work Order: **1309323**
Description: **Laboratory Services**
Sampled: **9/17/13 14:20**
Sampled By: **Mark Mengel**
Received: **9/19/13 10:00**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	1.4	1.0	0.18	ug/L	1	USEPA-6020A	09/30/13 12:06	KLV	1310018
Barium	75	1.0	0.14	ug/L	1	USEPA-6020A	09/30/13 12:06	KLV	1310018
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	09/30/13 12:06	KLV	1310018
Chromium	0.22 J	1.0	0.20	ug/L	1	USEPA-6020A	09/30/13 12:06	KLV	1310018
Copper	0.80 J	1.0	0.13	ug/L	1	USEPA-6020A	09/30/13 12:06	KLV	1310018
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	09/30/13 12:06	KLV	1310018
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	10/02/13 14:50	DSC	1310250
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	10/01/13 09:35	KLV	1310018
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	09/30/13 12:06	KLV	1310018
Zinc	4.8 J	10	1.5	ug/L	1	USEPA-6020A	09/30/13 12:06	KLV	1310018

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-MW04-0913**
 Lab Sample ID: **1309323-03**
 Matrix: **Water**
 Unit: **ug/L**
 Dilution Factor: **1**
 QC Batch: **1309927**

Work Order: **1309323**
 Description: **Laboratory Services**
 Sampled: **9/17/13 15:45**
 Sampled By: **Mark Mengel**
 Received: **9/19/13 10:00**
 Prepared: **9/20/13 10:20** By: **JTS**
 Analyzed: **9/27/13 18:31** By: **JLB**
 Analytical Batch: **3I30014**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

83

40-110

2-Fluorobiphenyl

87

50-110

o-Terphenyl

96

50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW04-0913**
Lab Sample ID: **1309323-03**
Matrix: **Water**

Work Order: **1309323**
Description: **Laboratory Services**
Sampled: **9/17/13 15:45**
Sampled By: **Mark Mengel**
Received: **9/19/13 10:00**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	7.0	1.0	0.18	ug/L	1	USEPA-6020A	09/30/13 12:54	KLV	1310019
*Barium	190	5.0	0.68	ug/L	5	USEPA-6020A	09/30/13 13:48	KLV	1310019
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	09/30/13 12:54	KLV	1310019
Chromium	1.0 U	1.0	0.20	ug/L	1	USEPA-6020A	09/30/13 12:54	KLV	1310019
Copper	0.44 J	1.0	0.13	ug/L	1	USEPA-6020A	09/30/13 12:54	KLV	1310019
Lead	1.2	1.0	0.15	ug/L	1	USEPA-6020A	09/30/13 12:54	KLV	1310019
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	10/02/13 15:52	DSC	1310251
Selenium	0.92 J	1.0	0.31	ug/L	1	USEPA-6020A	09/30/13 12:54	KLV	1310019
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	09/30/13 12:54	KLV	1310019
*Zinc	94	50	7.5	ug/L	5	USEPA-6020A	09/30/13 13:48	KLV	1310019

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW04-0913**
Lab Sample ID: **1309323-03**
Matrix: **Water**

Work Order: **1309323**
Description: **Laboratory Services**
Sampled: **9/17/13 15:45**
Sampled By: **Mark Mengel**
Received: **9/19/13 10:00**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	7.3	1.0	0.18	ug/L	1	USEPA-6020A	09/30/13 12:10	KLV	1310018
*Barium	190	5.0	0.68	ug/L	5	USEPA-6020A	09/30/13 13:29	KLV	1310018
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	09/30/13 12:10	KLV	1310018
Chromium	0.21 J	1.0	0.20	ug/L	1	USEPA-6020A	09/30/13 12:10	KLV	1310018
Copper	0.45 J	1.0	0.13	ug/L	1	USEPA-6020A	09/30/13 12:10	KLV	1310018
Lead	2.4	1.0	0.15	ug/L	1	USEPA-6020A	09/30/13 12:10	KLV	1310018
Mercury	0.070 J	0.20	0.055	ug/L	1	USEPA-7470A	10/02/13 14:55	DSC	1310250
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	10/01/13 09:38	KLV	1310018
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	09/30/13 12:10	KLV	1310018
*Zinc	99	50	7.5	ug/L	5	USEPA-6020A	09/30/13 13:29	KLV	1310018

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-FD091713**
 Lab Sample ID: **1309323-04**
 Matrix: **Water**
 Unit: **ug/L**
 Dilution Factor: **1**
 QC Batch: **1309927**

Work Order: **1309323**
 Description: **Laboratory Services**
 Sampled: **9/17/13 0:00**
 Sampled By: **Mark Mengel**
 Received: **9/19/13 10:00**
 Prepared: **9/20/13 10:20** By: **JTS**
 Analyzed: **9/27/13 19:07** By: **JLB**
 Analytical Batch: **3I30014**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:
Nitrobenzene-d5
2-Fluorobiphenyl
o-Terphenyl
% Recovery
84
86
96
Control Limits
40-110
50-110
50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-FD091713**
Lab Sample ID: **1309323-04**
Matrix: **Water**

Work Order: **1309323**
Description: **Laboratory Services**
Sampled: **9/17/13 0:00**
Sampled By: **Mark Mengel**
Received: **9/19/13 10:00**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	3.1	1.0	0.18	ug/L	1	USEPA-6020A	09/30/13 13:13	KLV	1310019
Barium	320	5.0	0.68	ug/L	5	USEPA-6020A	09/30/13 14:08	KLV	1310019
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	09/30/13 13:13	KLV	1310019
Chromium	0.40 J	1.0	0.20	ug/L	1	USEPA-6020A	09/30/13 13:13	KLV	1310019
Copper	0.78 J	1.0	0.13	ug/L	1	USEPA-6020A	09/30/13 13:13	KLV	1310019
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	09/30/13 13:13	KLV	1310019
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	10/02/13 16:09	DSC	1310251
Selenium	0.95 J	1.0	0.31	ug/L	1	USEPA-6020A	09/30/13 13:13	KLV	1310019
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	09/30/13 13:13	KLV	1310019
Zinc	4.5 J	10	1.5	ug/L	1	USEPA-6020A	09/30/13 13:13	KLV	1310019



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-FD091713**
Lab Sample ID: **1309323-04**
Matrix: **Water**

Work Order: **1309323**
Description: **Laboratory Services**
Sampled: **9/17/13 0:00**
Sampled By: **Mark Mengel**
Received: **9/19/13 10:00**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	3.5	1.0	0.18	ug/L	1	USEPA-6020A	09/30/13 12:29	KLV	1310018
Barium	310	5.0	0.68	ug/L	5	USEPA-6020A	09/30/13 13:43	KLV	1310018
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	09/30/13 12:29	KLV	1310018
Chromium	0.46 J	1.0	0.20	ug/L	1	USEPA-6020A	09/30/13 12:29	KLV	1310018
Copper	0.42 J	1.0	0.13	ug/L	1	USEPA-6020A	09/30/13 12:29	KLV	1310018
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	09/30/13 12:29	KLV	1310018
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	10/02/13 15:23	DSC	1310250
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	10/01/13 10:06	KLV	1310018
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	09/30/13 12:29	KLV	1310018
Zinc	5.2 J	10	1.5	ug/L	1	USEPA-6020A	09/30/13 12:29	KLV	1310018



CHAIN OF CUSTODY

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PAGE 1 OF 1 21-15

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ATTACHMENT D
DATA VALIDATION REPORT
(on pdf)

DECEMBER 2013 EVENT



TETRA TECH

661 Andersen Drive ■ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7000 ■ FAX (412) 921-4040 ■ www.tetrattech.com

PITT 01-14-002

January 28, 2014

Mr. James Cook
Environmental Engineer
USCG Civil Engineering Unit
1240 East Ninth St., Rm. 2179
Cleveland, OH 44199-2060

Reference: Contract Number HSCG83-08-D-3CL109
Task Order Number HSCG83-09-J-3CL358

**Subject: Groundwater Monitoring Report (December 2013 Event) for U.S. Coast Guard
Atwater Facility**

Dear Mr. Cook:

Tetra Tech, Inc. (Tt) is pleased to submit this quarterly Groundwater Monitoring Letter Report for the referenced Task Order for the United States Coast Guard (USCG) Atwater Facility in Detroit, Michigan. The objective of this portion of the project includes quarterly monitoring of the groundwater associated with the Atwater Facility (Figure 1) following the removal action conducted in April 2013. The sampling is being performed according to Modification 004 of the Task Order.

Four quarterly groundwater sampling events are planned. The first event was performed in June 2013, and the second event was performed in September 2013. The third event, described in this report, was performed in December 2013. The last event is scheduled for March 2014. Field activities and groundwater analytical results for the December 2013 event are summarized in this report. The work was performed in accordance to the Field Sampling Plan - Soil and Groundwater (Tetra Tech, 2011) and the Quality Assurance Project Plan Addendum (Tetra Tech, 2011).

FIELD OPERATIONS

Groundwater Sampling

Depth-to-water measurements were obtained at the three monitoring wells and to the Detroit River on December 4, 2013. Water level depths in the wells ranged from 2.20 (MW02R) to 3.90 (MW04) feet below top of casing (BTOC). Groundwater elevation data is provided in Table 1.

The groundwater level elevations in the three wells were higher in MW01R and MW02R (1.13 foot and 1.22 foot) and lower in MW04 (0.10 foot) during the December 2013 event as compared to the September 2013 event. The groundwater flow direction was toward the river.

On December 4, 2013, Tt collected groundwater samples from the three monitoring wells, MW01R, MW02R, and MW04. A duplicate sample was collected from MW01R. Samples were collected using low flow methods. Copies of the Groundwater Sample Log Sheets and Low Flow Purge Data Sheets are included in Attachment A. Following collection, the groundwater samples were shipped to Trimatrix Laboratories in Grand Rapids, Michigan for analysis of polynuclear aromatic hydrocarbons (PAHs) by EPA Method SW846 8310 and for total and dissolved Michigan 10 metals by EPA Methods 6020A and 7470A. Groundwater for dissolved metals analyses were filtered in the field using a 0.45 micron filter.

Purge water was drummed and was subsequently disposed of off-site by EarthSmart Environmental Solutions, LLC after confirming the results of the groundwater analyses (see Attachment B).

Groundwater samples were also analyzed for geochemical parameters using field kits and meters. The field kit analyses included dissolved oxygen (DO), alkalinity, carbon dioxide, ferrous iron, sulfide, and sulfate. The field meter measurements included pH and oxidation-reduction potential (ORP).

RESULTS

Laboratory Results

The analytical results for this event are summarized in Table 2. This table also includes the results from the previous sampling events. A copy of the laboratory summary report for this event is provided in Attachment C. The data validation report is included in Attachment D as a pdf file on a CD.

The PAH analytical results were not significantly different from the 2011/2012 sampling events and the June and September 2013 events. Like the September 2013 event, the PAHs were less than detection limits in all wells. In the past three events, PAHs were not detected in MW01R and MW02R and only trace concentrations of two PAHs (benzo(a)anthracene and chrysene) were detected in MW04 detected during the June 2013 event. The concentrations of PAHs in the wells were less than the Michigan Department of Environmental Quality (MDEQ) residential exposure criteria.

At MW01R, the total metals concentrations and dissolved metals concentrations were similar to previous results at MW01, except for arsenic. The total arsenic concentrations (sample and duplicate) in the sample from MW01R were 1.4 µg/L and 1.3 µg/L, respectively, and the dissolved arsenic concentrations (sample and duplicate) were 1.2 µg/L and 1.5 µg/L, respectively. The range of total arsenic concentrations from the 2011/2012 samples from MW01 was 0.52 µg/L to 1.5 µg/L, and the range of dissolved arsenic concentrations was 0.6 µg/L to 0.95 µg/L. The December 2013 concentrations were slightly less than the September 2013 concentrations and have shown a decreasing trend since the June 2013 event. Although the arsenic concentrations were elevated for this round, they are less than the United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) of 10 µg/L.

At MW02R, the total metals concentrations and dissolved metals concentrations were similar to previous results at MW02. The total arsenic concentration in the sample from MW02R was 0.63J µg/L, and the dissolved arsenic concentration was 0.51J µg/L. The range of total arsenic concentrations from the 2011/2012 samples from MW02 was 6.2 µg/L to 14 µg/L, and the range of dissolved arsenic concentrations was 1J µg/L to 12 µg/L. The December 2013 arsenic concentrations were slightly less than the September 2013 concentrations and were similar to the June 2013 event concentrations. The arsenic concentrations for this round are less than the USEPA MCL of 10 µg/L.

Total metals concentrations and dissolved metals concentrations in MW04 were generally similar to the previous results, except for arsenic. The total arsenic concentration in the sample was 3.6 µg/L, and the dissolved arsenic concentration was 3.3 µg/L, which were less than the concentrations in the September 2013 event (7.3 µg/L and 7 µg/L, respectively). The range of total arsenic concentrations from the 2011/2012 samples and the June 2013 event was 0.87J µg/L to 3.8J µg/L, and the range of dissolved arsenic concentrations was 0.84J µg/L to 3.6J µg/L. The December 2013 arsenic concentrations were significantly less than the maximum value observed in September 2013 and a within the range of previous measurements. The December 2013 arsenic concentrations were greater than the June 2013 concentrations, but still less than the USEPA MCL of 10 µg/L.

Field Measurements

Groundwater samples were analyzed in the field using field kits and meters to evaluate the geochemistry and its effects on contaminant concentrations and the potential for biological activity. Samples were analyzed for DO, alkalinity, carbon dioxide, ferrous iron, sulfide, and sulfate with field kits, and pH and ORP were measured with field meters. These results are summarized on Table 3.

The results for MW01R suggest anaerobic biological activity. The DO was low, and the ORP was negative. The ORP result was much more negative compared to previous measurements from MW01 and MW01R. Alkalinity, carbon dioxide, and ferrous iron concentrations were relatively high, which are also typical of anaerobic biological activity. Sulfide was detected. The sulfate concentration was greater than the last event and similar to the June 2013 event, and the pH was in the neutral range.

The results from MW02R were similar to the June 2013 event. The DO was 1 mg/L, but less than the last event. The ORP was positive compared to the negative result during the last event, but the June 2013 event was positive. The ORP results from previous measurements at MW02 were negative. The alkalinity concentration was less than the result from MW01R, and the carbon dioxide concentration was approximately one tenth of the result from MW01R. The ferrous iron and sulfide concentrations were less than detection limits which suggests the absence of anaerobic activity. The sulfate concentration was similar the previous result, and the pH was in the neutral range.


Many results from MW04 are similar to both MW01R and MW02R. The DO was low, and the ORP was negative. The ORP results from previous measurements at MW04 were negative. The alkalinity concentration was high, similar to MW01R, and the ferrous iron concentration was similar of the value from MW01R. However, the carbon dioxide concentration was low, similar to the result from MW02R. No sulfide was detected, and the sulfate concentration was less than the concentration in both MW01R and MW02R. The pH was in the neutral range. The negative ORP, low DO, and high ferrous iron concentration suggest anaerobic activity. However, like the last event, no sulfide was detected. The low sulfate concentration suggests less influence from off-site. As noted in the Removal Action Completion Report, the results of soil samples collected at the border of the site suggest that the adjacent property could be a source of organic contaminants.

CONCLUSIONS AND RECOMMENDATIONS

Concentrations of PAHs and metals were less than USEPA and MDEQ criteria during this sampling event. PAH concentrations were less than detection limits in the wells. The arsenic concentrations in MW01R and MW02R were similar to the last event, and the arsenic concentrations in MW04 decreased to the range observed in the June 2013 event and the 2011/2012 results. The results of the geochemistry field measurements are not definitive, but suggest anaerobic biological activity. Quarterly monitoring will be continued as planned.

Should you have any questions, please contact the Project Manager, Mr. Joseph Logan at (412) 921-7231 or me at (412) 921-8415.

Very truly yours,



Roger A. Clark, Ph.D.
Program Manager

RAC

cc: file 112G02435
Joseph Logan

TABLES

TABLE 1

**WATER LEVEL MEASUREMENTS
QUARTERLY MONITORING REPORT FOR DECEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN**

Well ID	Ground Surface Elevation (feet, NAVD 88)	Top of Casing (feet, NAVD 88)	Screened Interval		6/6/2011		9/14/2011		12/16/2011		3/6/2012		6/25/2013		9/17/2013		12/4/2013	
			Top (feet bgs)	Bottom (feet bgs)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)
MW01	579.58	579.53	3.0	13.0	2.22	577.31	1.70	577.83	1.00	578.53	1.43	578.10	ABAN	-	ABAN	-	ABAN	-
MW01R	579.69	579.49	3.0	13.0	-	-	-	-	-	-	-	-	2.63	576.86	4.02	575.47	2.89	576.60
MW02	579.54	579.62	3.0	13.0	3.95	575.67	3.32	576.30	3.20	576.42	3.42	576.20	ABAN	-	ABAN	-	ABAN	-
MW02R	579.07	578.83	3.0	13.0	-	-	-	-	-	-	-	-	2.67	576.16	3.42	575.41	2.20	576.63
MW03	579.33	579.00	3.0	13.0	3.89	575.11	3.94	575.06	4.08	574.92	4.26	574.74	ABAN	-	ABAN	-	ABAN	-
MW04	578.68	578.11	3.0	13.0	3.18	574.93	3.05	575.06	2.49	575.62	3.30	574.81	3.58	574.53	3.80	574.31	3.90	574.21
River Level	578.69	NA	NA	NA	3.85	574.84	4.50	574.19	4.20	574.49	4.78	573.91	NM	NM	4.95	573.74	5.70	572.99

Notes:

bgs - below ground

ABAN - Abandoned.

BTOC - below top of casing.

NA - Not Applicable.

NAVD - North American Vertical Datum.

NM - Not measured.

TABLE 2

**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR DECEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 1 OF 4**

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs DISSOLVED METALS (UG/L)	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW01				DAMW01R					
					6/6/2011 3 13	9/14/2011 3 13	12/16/2011 3 13	3/6/2012 3 13	6/25/2013 3 13	6/25/2013-D 3 13	9/17/2013 3 13	9/17/2013-D 3 13	12/4/2013 3 13	12/4/2013-D 3 13
ARSENIC	10	10	10	10	0.95 J	0.73 J	0.36 J	0.6 J	5	4.9	2.8	3.1	1.2	1.5
BARIUM	2000	2000	670	2000	190 J	300	260	250	300	290	300 J	320 J	290	300
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.14 J	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHROMIUM	100	100	100	100	0.3 J	0.27 J	1 U	1 U	0.71 U	0.86 U	0.38 J	0.4 J	0.5 U	0.2 J
COPPER	1300	1000	13	1300	0.44 J	0.61 J	0.28 J	1 U	0.73 J	0.55 J	0.94 J	0.78 J	0.66 J	0.68 J
LEAD	15	2	14	15	0.17 J	0.18 J	1 U	1 UJ	0.56 J	0.41 J	0.5 U	0.5 U	0.5 U	0.5 U
SELENIUM	50	50	5	50	5 UJ	1.1 J	5 U	5 U	1 U	1 U	1 U	1 U	0.79 J	0.79 J
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.045 J	0.1 U
ZINC	NC	2400	170	2400	5.5	6.7	6.5 U	10 U	7 J	2.9 J	2.9 J	4.5 J	6.6 J	7.1 J
METALS (UG/L)														
ARSENIC	10	10	10	10	1.5 J	1 J	0.52 J	0.63 J	4.6	5.1	3.2	3.5	1.4	1.3
BARIUM	2000	2000	670	2000	210	300	260	240	290	300	310 J	310 J	300 J	300 J
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.79 J	0.06 J	0.044 J	0.04 J	0.039 J	0.1 U	0.1 U	0.1 U
CHROMIUM	100	100	100	100	0.31 J	0.25 J	0.57 J	1 U	0.54 J	0.54 J	0.5 J	0.46 J	0.5 U	0.5 U
COPPER	1300	1000	13	1300	0.74 J	0.79 J	0.98 J	1 U	0.71 J	0.81 J	0.9 J	0.42 J	1.3	1.2
LEAD	15	2	14	15	0.73 J	1	0.63 J	0.26 J	2	2.1	0.15 J	0.5 U	0.39 J	0.41 J
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	5 U	0.69 U	1 U	1 U	1 U	0.55 J	1 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.055 J	0.1 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	6.9 J	9.4	10	4 J	2.7 J	4.7 J	4.5 J	5.2 J	7.8 J	6.3 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)														
2-METHYLNAPHTHALENE	NC	260	19	260	0.5 U	0.5 U	0.5 U	0.5 U	0.054 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	0.5 U	0.031 J	0.5 U	0.03 J	0.054 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	0.5 U	0.5 U	0.5 U	0.5 U	0.054 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ANTHRACENE	NC	43	ID	43	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.051 J	0.06 J	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.1 J	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.041 J	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
FLUORENE	NC	880	12	880	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	NC	520	11	520	0.5 U	0.5 U	0.5 U	0.04 J	0.054 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PHENANTHRENE	NC	52	2	52	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
PYRENE	NC	140	ID	140	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

1 - For comparison only.

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U - Below detection limit at detection limit shown.

D - Duplicate sample

Shaded cell indicates concentration greater than selected criterion.

bgs - Below ground surface.

GSI - Groundwater-surface water interface

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MCL - Maximum Contaminant Level.

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RBSL - Risk-Based Screening Level

TABLE 2

**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR DECEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 2 OF 4**

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW02						DAMW02R		
					6/6/2011	9/14/2011	12/16/2011	12/16/2011-	3/6/2012	3/6/2012-D	6/25/2013	9/17/2013	12/4/2013
					3 13	3 13	3 13	3 13	3 13	3 13	3 13	3 13	3 13
DISSOLVED METALS (UG/L)													
ARSENIC	10	10	10	10	1 J	9	9.3	9.2	12	12	0.55 J	1.5	0.51 J
BARIUM	2000	2000	670	2000	200 J	150	110	100	87	89	100	77 J	53
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.058 J	0.046 J	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U
CHROMIUM	100	100	100	100	0.47 J	0.45 J	0.36 J	0.37 J	1 U	1 U	0.79 U	0.27 J	0.37 J
COPPER	1300	1000	13	1300	0.42 J	0.16 J	1 U	0.28 J	1 U	1 U	1.3	0.8 J	0.57 J
LEAD	15	2	14	15	0.2 J	1 U	1 U	1 U	1 UJ	1 UJ	0.5 U	0.5 U	0.5 U
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	5 U	0.39 J	1.3 J	1.4 U	1 U	0.33 J
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.12 J
ZINC	NC	2400	170	2400	5 U	5 U	6.9 U	7.8 U	10 U	10 U	3.7 J	5.7 J	5.6 J
METALS (UG/L)													
ARSENIC	10	10	10	10	6.2	12	9.5	10	14	14	0.58 J	1.4	0.63 J
BARIUM	2000	2000	670	2000	150	160	110	110	86	84	110	75 J	54 J
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.73 J	0.054 J	0.1 J	0.11 J	0.042 J	0.1 U	0.043 J
CHROMIUM	100	100	100	100	0.33 J	0.51 J	0.39 J	0.38 J	1 U	1.3 U	0.98 J	0.22 J	0.39 J
COPPER	1300	1000	13	1300	1.2	0.29 J	0.19 J	0.39 J	1 U	1 U	1.3	0.8 J	0.57 J
LEAD	15	2	14	15	0.85 J	0.39 J	0.16 J	0.23 J	1 U	1 U	0.5 U	0.5 U	0.5 U
SELENIUM	50	50	5	50	1 J	1.5 J	5 U	5 U	5 U	0.55 J	1 U	1 U	1 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	3.9 J	6.4	8.6	10	7.6 J	3.2 J	2.8 J	4.8 J	6 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)													
2-METHYLNAPHTHALENE	NC	260	19	260	24 J	43	42	33	50	49	0.05 U	0.05 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	6 J	14	10	7.7 J	6.9	6.6	0.05 U	0.05 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	1.7 J	3.8 J	3.7 J	2.6 J	3.9 J	3.7 J	0.05 U	0.05 U	0.05 U
ANTHRACENE	NC	43	ID	43	3.8 J	4.8 J	3.1 J	2.2 J	6.3	4.6 J	0.1 U	0.1 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.28 J	1.3 J	1.2 J	10 U	0.92 J	0.72 J	0.1 U	0.1 U	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 UJ	1 J	10 U	10 U	5 U	5 U	0.1 U	0.1 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.1 U	0.1 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.05 J	12 U	10 U	10 U	0.41 J	5 U	0.1 U	0.1 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.1 J	12 U	10 U	10 U	5 U	5 U	0.1 U	0.1 U	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.2 U	0.2 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.52 J	1.5 J	1 J	0.81 J	0.92 J	0.82 J	0.1 U	0.1 U	0.1 U
FLUORENE	NC	880	12	880	3.5 J	13	24	19	21	21	0.1 U	0.1 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	NC	520	11	520	120	170	170	130	180	180	0.05 U	0.05 U	0.05 U
PHENANTHRENE	NC	52	2	52	8.8 J	11 J	11	8.3 J	12	12	0.1 U	0.1 U	0.1 U
PYRENE	NC	140	ID	140	0.39 J	1.5 J	1 J	10 U	0.92 J	0.82 J	0.1 U	0.1 U	0.1 U

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D - Duplicate sample

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GSI - Groundwater-surface water interface

ID - Insufficient data to develop criterion.

MCL - Maximum Contaminant Level.

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RBSL - Risk-Based Screening Level

TABLE 2

**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR DECEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 3 OF 4**

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW03					
					6/6/2011	6/6/2011-D	9/14/2011	9/14/2011-D	12/16/2011	3/6/2012
					3 13	3 13	3 13	3 13	3 13	3 13
DISSOLVED METALS (UG/L)										
ARSENIC	10	10	10	10	2.7 J	2.7 J	4.3 J	4.1 J	1.3 J	0.71 J
BARIUM	2000	2000	670	2000	310 J	300 J	370	360	310	270
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHROMIUM	100	100	100	100	0.21 J	1 U	0.22 J	0.23 J	1 U	1 U
COPPER	1300	1000	13	1300	1 U	1 U	1 U	0.15 J	0.25 J	1 U
LEAD	15	2	14	15	1 U	1 U	1 U	1 U	1 U	1 UJ
SELENIUM	50	50	5	50	5 UJ	5 UJ	0.97 J	0.96 J	5 U	5 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ZINC	NC	2400	170	2400	4.2 J	3.9 J	5.5	5 U	7.7 U	10 U
METALS (UG/L)										
ARSENIC	10	10	10	10	2.6 J	2.5 J	4.8 J	4.4 J	1.3 J	0.75 J
BARIUM	2000	2000	670	2000	290	290	370	340	300	270
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.37 U	1.1 J	0.051 J	0.2 U
CHROMIUM	100	100	100	100	0.29 J	0.27 J	0.24 J	0.24 J	0.22 J	1 U
COPPER	1300	1000	13	1300	0.77 J	1 U	0.3 J	0.37 J	0.39 J	1 U
LEAD	15	2	14	15	0.47 J	0.33 J	0.7 J	0.57 J	1.2	0.18 J
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ZINC	NC	2400	170	2400	8.5 J	4.6 J	10	8.4	8.4	2 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)										
2-METHYLNAPHTHALENE	NC	260	19	260	0.07 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ACENAPHTHENE	NC	1300	38	1300	1.6	1.6	2.6	2.9	1.5	1.6
ACENAPHTHYLENE	NC	52	ID	52	0.05 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ANTHRACENE	NC	43	ID	43	0.22 J	0.19 J	0.23 J	0.23 J	0.092 J	0.13 J
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.072 J	0.051 J	0.041 J	0.051 J
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.052 J	0.5 U	0.5 U	0.5 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.082 J
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
FLUORANTHENE	NC	210	1.6	210	0.2 J	0.15 J	0.27 J	0.23 J	0.11 J	0.11 J
FLUORENE	NC	880	12	880	0.36 J	0.27 J	0.19 J	0.28 J	0.13 J	0.13 J
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.14 J
NAPHTHALENE	NC	520	11	520	0.19 J	0.11 J	0.062 J	0.5 U	0.5 U	0.5 U
PHENANTHRENE	NC	52	2	52	1.2	1	1.4	1.5	0.6	0.67
PYRENE	NC	140	ID	140	0.15 J	0.13 J	0.23 J	0.24 J	0.1 J	0.082 J

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D - Duplicate sample

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GSI - Groundwater-surface water interface

ID - Insufficient data to develop criterion.

MCL - Maximum Contaminant Level.

NC - No criterion.

RBSL - Risk-Based Screening Level

TABLE 2

**SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR DECEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 4 OF 4**

LOCATION	FEDERAL MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW04						
SAMPLE DATE					6/6/2011	9/14/2011	12/16/2011	3/6/2012	6/25/2013	9/17/2013	12/4/2013
TOP OF SCREEN, FEET bgs					3	3	3	3	3	3	3
BOTTOM OF SCREEN, FEET bgs					13	13	13	13	13	13	13
DISSOLVED METALS (UG/L)											
ARSENIC	10	10	10	10	3 J	3.6 J	1.2 J	0.84 J	1.9	7	3.3
BARIUM	2000	2000	670	2000	150 J	210	130	130	190	190 J	170
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.2 U	0.19 J	0.31	0.1 U	0.075 J
CHROMIUM	100	100	100	100	1 U	1 U	0.23 J	1 U	0.83 U	0.5 U	0.5 U
COPPER	1300	1000	13	1300	0.88 J	0.6 J	0.32 J	1 U	1.9	0.44 J	0.25 J
LEAD	15	2	14	15	0.44 J	0.45 J	0.17 J	2.8 J	3	1.2	1.4
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	0.73 J	2.6	1 U	1 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	110	100	100	140	180	94 J	84
METALS (UG/L)											
ARSENIC	10	10	10	10	3 J	3.8 J	1.1 J	0.87 J	1.4	7.3	3.6
BARIUM	2000	2000	670	2000	150	210	130	130	190	190 J	170 J
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.091 J	0.25	0.34	0.1 U	0.085 J
CHROMIUM	100	100	100	100	0.36 J	1 U	1 U	1 U	0.71 J	0.21 J	0.35 J
COPPER	1300	1000	13	1300	2.6	1.8	0.64 J	1 U	1.4	0.45 J	0.43 J
LEAD	15	2	14	15	2.1	3.3	1.8	2.8	3.8	2.4	3.7
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	0.79 J	4.9	1 U	0.37 J
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	110 J	120	110	150	190	99 J	90 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)											
2-METHYLNAPHTHALENE	NC	260	19	260	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	0.05 J	0.03 J	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U
ANTHRACENE	NC	43	ID	43	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.19 J	0.5 U	0.062 J	0.1 U	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.24 J	0.5 U	0.1 U	0.1 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.22 J	0.5 U	0.1 U	0.1 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.27 J	0.5 U	0.1 U	0.1 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.22 J	0.5 U	0.052 J	0.1 U	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.14 J	0.5 U	0.2 U	0.2 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.5 U	0.5 U	0.04 J	0.5 U	0.1 U	0.1 U	0.1 U
FLUORENE	NC	880	12	880	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.14 J	0.5 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	NC	520	11	520	0.05 J	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U
PHENANTHRENE	NC	52	2	52	0.05 J	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U
PYRENE	NC	140	ID	140	0.04 J	0.5 U	0.061 J	0.5 U	0.1 U	0.1 U	0.1 U

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TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR DECEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 1 OF 3**

LOCATION	DAMW01				DAMW01R		
SAMPLE DATE	6/6/11	9/14/11	12/16/11	3/6/12	6/25/13	9/17/13	12/4/13
Appearance	clear	clear	clear	clear	clear	clear	clear
Purge Meter Measurements							
pH (SU)	6.8	6.5	6.8	7.0	7.0	6.6	7.2
Specific Conductivity (mS/cm)	0.992	1.04	1.08	1.02	0.922	1.13	1.04
Temperature (°C)	18.4	20.3	9.5	7.0	19.3	19.3	11.3
Turbidity (NTU)	0.0	0.0	8.8	5.1	7.4	1.0	0.0
Dissolved Oxygen (mg/L)	0.0	0.26	0.0	2.08	0.38	0.39	0.7
ORP (mV)	-176	-158	-204	-98	-84	-122	-213
Field Test Kits							
Dissolved Oxygen (mg/L)	NM	NM	NM	NM	0.9	0.7	0.9
Alkalinity (ppm)	NM	NM	NM	NM	375	350	300
Carbon Dioxide (ppm)	NM	NM	NM	NM	75	85	110
Ferrous Iron (ppm)	NM	NM	NM	NM	1.4	2.3	1.2
Sulfide (ppm)	NM	NM	NM	NM	0.05	0.9	0.9
Sulfate (ppm)	NM	NM	NM	NM	51	8	55

mg/L - milligrams per liter.
mS/cm - millisiemens per centimeter.
mV - millivolts.
NM - Not measured.
NTU - nephelometric turbidity units.
ORP - Oxidation-reduction potential.
ppm - parts per million.
SU - standard units.

TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR DECEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 2 OF 3**

LOCATION	DAMW02				DAMW02R		
SAMPLE DATE	6/6/11	9/14/11	12/16/11	3/6/12	6/25/13	9/17/13	12/4/13
Appearance	clear	clear	clear	clear w/black specks	clear	clear	clear
Purge Meter Measurements							
pH (SU)	7.7	7.3	7.6	8.1	7.3	7.8	7.2
Specific Conductivity (mS/cm)	1.49	1.38	1.48	1.27	0.554	0.564	0.620
Temperature (°C)	12.5	19.0	10.4	8.8	20.1	18.1	11.1
Turbidity (NTU)	0.0	1.7	1.2	1.5	3.2	0.0	2.9
Dissolved Oxygen (mg/L)	0.0	0.37	0.0	1.55	1.51	0.47	1.61
ORP (mV)	-192	-297	-294	-255	43	-28	51
Field Test Kits							
Dissolved Oxygen (mg/L)	NM	NM	NM	NM	2.7	1.5	1
Alkalinity (ppm)	NM	NM	NM	NM	180	500	190
Carbon Dioxide (ppm)	NM	NM	NM	NM	26	25	11
Ferrous Iron (ppm)	NM	NM	NM	NM	0	0.1	0
Sulfide (ppm)	NM	NM	NM	NM	0	0	0
Sulfate (ppm)	NM	NM	NM	NM	31	37	41

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR DECEMBER 2013 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 3 OF 3**

LOCATION	DAMW03				DAMW04						
SAMPLE DATE	6/6/11	9/14/11	12/16/11	3/6/12	6/6/11	9/14/11	12/16/11	3/6/12	6/25/13	9/17/13	12/4/13
Appearance	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear

Purge Meter Measurements

pH (SU)	7.2	6.7	6.5	7.2	7.3	6.7	6.7	7.1	6.9	7.3	7.0
Specific Conductivity (mS/cm)	0.925	0.99	1.06	0.992	0.694	0.863	0.71	0.664	0.772	0.794	0.652
Temperature (°C)	12.5	21.8	10.6	8.8	16.1	22.8	11.0	8.4	16.7	20.8	13.9
Turbidity (NTU)	0.7	1.3	4.5	0.5	1.7	0.0	3.6	0	0	0	0.15
Dissolved Oxygen (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.48	0.47	1.17
ORP (mV)	-107	-92	-74	-123	-53	-21	-24	-15	64	-46	-45

Field Test Kits

Dissolved Oxygen (mg/L)	NM	NM	NM	NM	NM	NM	NM	NM	1	0.7	0.5
Alkalinity (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	400	360	300
Carbon Dioxide (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	60	75	31
Ferrous Iron (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	0.4	1.4	1.2
Sulfide (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	0	0	0
Sulfate (ppm)	NM	NM	NM	NM	NM	NM	NM	NM	>80	26	15

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

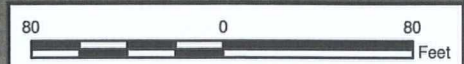
FIGURE

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).



Legend

- Monitoring Well
- ⊕ Abandoned Monitoring Well
- ▭ Property Boundary



DRAWN BY	DATE
J. ENGLISH	07/29/11
CHECKED BY	DATE
J. LOGAN	08/07/13
REVISED BY	DATE
S. PAXTON	08/07/13

SCALE
AS NOTED



MONITORING WELLS USCG ATWATER DETROIT, MICHIGAN

CONTRACT NUMBER 02435	CTO NUMBER ___
APPROVED BY ___	DATE ___
APPROVED BY ___	DATE ___
FIGURE NO. 1	REV 0

**ATTACHMENT A
SAMPLING FIELD FORMS**

GROUNDWATER SAMPLE LOG SHEET



Tetra Tech Inc.

Event: Quarterly GW Monitoring

Project Site Name: Detroit - Atwater

Project No.: 112G02435

Sample ID: DA-MW01R-1213	Sampled By: T. ROJANN
QA/QC Duplicate ID: DA-FD-1213	Sample Date: 12/04/13
MS/MSD Collected: YES (NO)	Sample Time: 1250

WELL INFORMATION:	
Well ID: MW01R	Purge Date: 12/04/13
Well Diameter (in): 2"	Static Water Level (ft-BTOR):
Top of Screen (ft-BTOR): 3'	PID Monitor Reading: —
Bottom of Screen (ft-BTOR): 13	Purge Method: Peristaltic Pump
Total Well Depth (ft-BTOR): 13'	Sample Method: Peristaltic Pump

EQUIPMENT INFORMATION:	
Water Quality Instrument: HORIBA	Pump Controller: Geotech Geopump
Turbidity Meter: "	

PURGE DATA:											
Time (Hrs)	H ₂ O Level (ft-BTOR)	Flow mL/min.	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1143	2.89	0	Clear	—	—	—	—	—	—	—	STAT
1153	2.98	180	"	6.98	0.980	0.88	0.8	11.86	-186	0.3	1800ml
1203	2.98	180	"	6.99	0.961	0.68	0.9	11.66	-203	0.3	3600
1213	2.98	180	"	7.09	0.974	0.67	0.1	11.50	-210	0.3	5400
1223	2.98	180	"	7.15	0.983	0.68	0.0	11.51	-212	0.3	7200
1233	2.98	180	"	7.18	0.999	0.67	0.0	11.44	-213	0.3	9000
1238	2.98	180	"	7.15	1.03	0.69	0.0	11.35	-213	0.3	9900
1243	2.98	180	"	7.16	1.03	0.69	0.0	11.33	-213	0.3	10800
1248	2.98	180	"	7.16	1.04	0.70	0.0	11.29	-213	0.3	11900

FINAL PURGE / SAMPLE DATA:											
Start Purge	End Purge	Total (min.)	Total Vol. (gal) (L)	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1143	1248	65	11.9	7.16	1.04	0.70	0.0	11.29	-213	0.3	—

ANALYSIS, PRESERVATION AND BOTTLE REQUIREMENTS:						
Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
PAHs	See lab Spec	4° C	2	1 L	Amber Glass	✓
Total Metals	See lab Spec	HN03	1	250 ml	Plastic	✓
Dissolved Metals	See lab Spec	HN03	1	250 ml	Plastic	✓

OBSERVATIONS/ NOTES:			
Coordinates:	N	E	Signature(s): Tony Rojann



Tetra Tech Inc.

FIELD ANALYTICAL LOG SHEET GEOCHEMICAL PARAMETERS

Page 2 of 3

Project Site Name: USCG Detroit				Sample ID No.: DA-MW01R-1213			
Project No.: 112G02435				Sample Location: MW01R			
Sampled By: T. ROSANN				Duplicate: -			
Field Analyst: T. ROSANN				Blank: -			
Field Form Checked as per QA/QC Checklist (initials): TR							

SAMPLING DATA:								
Date: 12/04/13	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity PPT ₂₀	ORP (Eh) (+/- mv)
Time: 1250	CLEAR	7.16	1.04	11.29	0.0	0.70	0.3	-213
Method: PERISTALTIC								

SAMPLE COLLECTION/ANALYSIS INFORMATION:	
ORP (Eh) (+/- mv)	Electrode Make & Model: HANNA / 7313 Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen / (Platinum)

Dissolved Oxygen:
 Equipment: Chemetrics Test Kit

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-7501	0.9
<input type="checkbox"/>	1 to 12 ppm	K-7512	

Concentration: **0.9** ppm
 Analysis Time: **12:55**

Alkalinity:
 Equipment: Chemetrics Test Kit

Range Used:	Range	Method	Concentration ppm
<input type="checkbox"/>	10 to 100 ppm	K-9810	
<input checked="" type="checkbox"/>	50 to 500 ppm	K-9815	300
<input type="checkbox"/>	100 to 1000 ppm	K-9820	

Concentration: **300** ppm
 Analysis Time: **1342**

Carbon Dioxide:
 Equipment: Chemetrics Test Kit

Range Used:	Range	Method	Concentration ppm
<input type="checkbox"/>	10 to 100 ppm	K-1910	
<input checked="" type="checkbox"/>	100 to 1000 ppm	K-1920	
<input type="checkbox"/>	250 to 2500 ppm	K-1925	

Concentration: **110** ppm
 Analysis Time: **1337**

Ferrous Iron (Fe²⁺):
 Equipment: **HACH IR-18C Color Wheel** Range: 0 - 10 mg/L

Concentration: **1.2** ppm
 Analysis Time: **1301**

Sulfide (S²⁻):
 Equipment: Chemetrics Test Kit

Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-9510	0.9
<input type="checkbox"/>	1 to 10 ppm	K-9510	

Concentration: **0.9** ppm
 Analysis Time: **1331**



Tetra Tech Inc.

**FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS**

Page 3 of 3

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MW01R-1213
Project No.:	112G02435	Sample Location:	MW01R
Sampled By:	T. ROJAHN	Duplicate:	—
Field Analyst:	"	Blank:	—
Field Form Checked as per QA/QC Checklist (initials): TR			
Sulfate (SO_4^{2-}):			
Equipment:	HACH DR/890	Range:	2-70 mg/L
Program/Module:	92	Concentration:	55 ppm
		Analysis Time:	1319
Notes:		Filtered:	
QA/QC Checklist:			
All data fields have been completed as necessary:			
Correct measurement units are cited in the SAMPLING DATA block:			
Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet:			
Final calculated concentration is within the appropriate Range Used block:			
Title block on each page of form is initialized by person who performed this QA/QC Checklist:			



Project No.: 112G02435

[illegible]



Tetra Tech Inc.

FIELD ANALYTICAL LOG SHEET GEOCHEMICAL PARAMETERS

Page 2 of 3

Project Site Name: USCG Detroit				Sample ID No.: DA-MW02R-1213			
Project No.: 112G02435				Sample Location: MW02R			
Sampled By: M. MENGEL				Duplicate: —			
Field Analyst: T. ROJANA				Blank: —			
Field Form Checked as per QA/QC Checklist (initials): TRR							
SAMPLING DATA:							
Date: 12-04-13	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity ppt (‰)
Time: 1240							ORP (Eh) (+/- mv)
Method: Peristaltic	Clear	7.21	0.620	11.11	2.9	161	0.3 51
SAMPLE COLLECTION/ANALYSIS INFORMATION:							
ORP (Eh) (+/- mv)				Electrode Make & Model: HANNA / 7313			
				Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen Platinum			
Dissolved Oxygen:							
Equipment: Chemetrics Test Kit				Concentration: <u>1</u> ppm			
Range Used:	Range	Method	Concentration ppm	Analysis Time: <u>1406</u>			
<input checked="" type="checkbox"/>	0 to 1 ppm	K-7501					
<input checked="" type="checkbox"/>	1 to 12 ppm	K-7512	<u>1</u>				
Notes:							
Alkalinity:							
Equipment: Chemetrics Test Kit				Concentration: <u>190</u> ppm			
Range Used:	Range	Method	Concentration ppm	Analysis Time: <u>1429</u>			
<input checked="" type="checkbox"/>	10 to 100 ppm	K-9810					
<input checked="" type="checkbox"/>	50 to 500 ppm	K-9815	<u>190</u>				
<input type="checkbox"/>	100 to 1000 ppm	K-9820					
Notes:							
Carbon Dioxide:							
Equipment: Chemetrics Test Kit				Concentration: <u>11</u> ppm			
Range Used:	Range	Method	Concentration ppm	Analysis Time: <u>1424</u>			
<input checked="" type="checkbox"/>	10 to 100 ppm	K-1910	<u>11</u>				
<input type="checkbox"/>	100 to 1000 ppm	K-1920					
<input type="checkbox"/>	250 to 2500 ppm	K-1925					
Notes:							
Ferrous Iron (Fe²⁺):							
Equipment: HACH IR-18C Color Wheel Range: 0 - 10 mg/L				Concentration: <u>0</u> ppm			
				Analysis Time: <u>1411</u>			
Notes:							
Sulfide (S²⁻):							
Equipment: Chemetrics Test Kit				Concentration: <u>0</u> ppm			
Range Used:	Range	Method	Concentration ppm	Analysis Time: <u>1421</u>			
<input checked="" type="checkbox"/>	0 to 1 ppm	K-9510	<u>0</u>				
<input type="checkbox"/>	1 to 10 ppm	K-9510					
Notes:							



Tetra Tech Inc.

**FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS**Page **3** of **3**

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MW02R-1213
Project No.:	112G02435	Sample Location:	MW02R
Sampled By:	M MENGEL	Duplicate:	—
Field Analyst:	T. ROJANN	Blank:	—
Field Form Checked as per QA/QC Checklist (initials): TLL			
Sulfate (SO_4^{2-}):			
Equipment:	HACH DR/890	Range:	2-70 mg/L
Program/Module:	92	Concentration:	41 ppm
Notes:		Analysis Time:	1405
		Filtered:	
QA/QC Checklist:			
All data fields have been completed as necessary:			
Correct measurement units are cited in the SAMPLING DATA block:			
Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet:			
Final calculated concentration is within the appropriate <i>Range Used</i> block:			
Title block on each page of form is initialized by person who performed this QA/QC Checklist:			

GROUNDWATER SAMPLE LOG SHEET



Tetra Tech Inc.

Event: Quarterly GW Monitoring
 Project Site Name: Detroit - Atwater
 Project No.: 112G02435

Sample ID: <u>DA-MW04-1213</u>	Sampled By: <u>MARK MENDEL</u>
QA/QC Duplicate ID: <u> </u>	Sample Date: <u>12/04/13</u>
MS/MSD Collected: <u>YES</u> NO	Sample Time: <u>1415</u>

WELL INFORMATION:	
Well ID: <u>MW04</u>	Purge Date: <u>12/04/13</u>
Well Diameter (in): <u>2"</u>	Static Water Level (ft-BTOR): <u>3.90</u>
Top of Screen (ft-BTOR): <u>3'</u>	PID Monitor Reading: <u> </u>
Bottom of Screen (ft-BTOR): <u>13</u>	Purge Method: <u>Peristaltic Pump</u>
Total Well Depth (ft-BTOR): <u>13'</u>	Sample Method: <u>Peristaltic Pump</u>

EQUIPMENT INFORMATION:	
Water Quality Instrument: <u>HANNA US2 (058043X)</u>	Pump Controller: <u>GEOPUMP</u>
Turbidity Meter: <u> </u>	

PURGE DATA:											
Time (Hrs)	H ₂ O Level (ft-BTOR)	Flow mL/min.	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1310	3.90	200	clear	6.94	0.643	1.77	2.7	14.44	-8	0.3	
1320	4.25	200	clear	6.91	0.640	1.40	3.9	14.01	-15	0.3	
1330	4.37	200	clear	6.90	0.641	1.33	4.2	13.91	-26	0.3	
1340	4.45	200	clear	6.91	0.640	1.74	2.0	13.97	-33	0.3	
1350	4.60	200	clear	6.93	0.645	1.89	1.1	13.97	-39	0.3	
1400	4.65	200	clear	6.94	0.650	1.17	0.6	13.93	-42	0.3	
1410	4.67	200	clear	6.95	0.652	1.17	0.5	13.92	-45	0.3	

FINAL PURGE / SAMPLE DATA:											
Start Purge	End Purge	Total (min.)	Total Vol. (gal. / L.)	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1310	1410	60		6.95	0.652	1.17	0.5	13.92	-45	0.3	

ANALYSIS, PRESERVATION AND BOTTLE REQUIREMENTS						
Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
PAHs	See lab Spec	4° C	2	1 L	Amber Glass	✓
Total Metals	See lab Spec	HN03	1	250 ml	Plastic	✓
Dissolved Metals	See lab Spec	HN03	1	250 ml	Plastic	✓

OBSERVATIONS / NOTES:			
Coordinates:	N	E	Signature(s): <u>Mark A. Mengel</u>



Tetra Tech Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Page 2 of 3

Project Site Name: USCG Detroit		Sample ID No.: DA-MW04-1213						
Project No.: 112G02435		Sample Location: MW04						
Sampled By: M. MENDEL		Duplicate: —						
Field Analyst: T. ROJANA		Blank: —						
Field Form Checked as per QA/QC Checklist (initials): TRR								
SAMPLING DATA:								
Date: 12-04-13	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity PPT (45)	ORP (Eh) (+/- mv)
Time: 1415								
Method: PERISTALTIC	CLEAR	6.95	0.652	13.92	0.15	1.17	0.3	-45
SAMPLE COLLECTION/ANALYSIS INFORMATION:								
ORP (Eh) (+/- mv)		Electrode Make & Model: HANNA / 7313						
		Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen Platinum						
Dissolved Oxygen:								
Equipment: Chemetrics Test Kit					Concentration: 0.5 ppm			
Range Used:	Range	Method	Concentration ppm					
✓	0 to 1 ppm	K-7501	0.5					
	1 to 12 ppm	K-7512						
Notes:								
Alkalinity:								
Equipment: Chemetrics Test Kit					Concentration: 300 ppm			
Range Used:	Range	Method	Concentration ppm					
	10 to 100 ppm	K-9810						
✓	50 to 500 ppm	K-9815	300					
	100 to 1000 ppm	K-9820						
Notes:								
Carbon Dioxide:								
Equipment: Chemetrics Test Kit					Concentration: 31 ppm			
Range Used:	Range	Method	Concentration ppm					
✓	10 to 100 ppm	K-1910	31					
	100 to 1000 ppm	K-1920						
	250 to 2500 ppm	K-1925						
Notes:								
Ferrous Iron (Fe²⁺):								
Equipment:		HACH IR-18C Color Wheel		Range: 0 - 10 mg/L		Concentration: 1.2 ppm		
						Analysis Time: 1449		
Notes:								
Sulfide (S²⁻):								
Equipment: Chemetrics Test Kit					Concentration: 0 ppm			
Range Used:	Range	Method	Concentration ppm					
✓	0 to 1 ppm	K-9510	0					
	1 to 10 ppm	K-9510						
Notes:								



Tetra Tech Inc.

**FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS**

Page 3 of 3

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MW04-1213
Project No.:	112G02435	Sample Location:	M04
Sampled By:	M. MENGEL	Duplicate:	—
Field Analyst:	T. ROJANA	Blank:	—
Field Form Checked as per QA/QC Checklist (initials): TLR			
Sulfate (SO_4^{2-}):			
Equipment:	HACH DR/890	Range:	2-70 mg/L
Program/Module:	92	Concentration:	15 ppm
Notes:		Analysis Time:	1445
		Filtered:	
QA/QC Checklist:			
All data fields have been completed as necessary:			
Correct measurement units are cited in the SAMPLING DATA block:			
Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet:			
Final calculated concentration is within the appropriate <i>Range Used</i> block:			
Title block on each page of form is initialized by person who performed this QA/QC Checklist:			

16 WED 12/04/13 USCG DETROIT - ATWATER SITE
112 G02435

0600 HRS - LEFT HOME
0625 HRS - ARRIVE @ MM HOME
0632 HRS - LEFT MM HOME FOR DETROIT ATWATER
10:50 HRS - ARRIVE @ STATION Pickup gate key
11:03 HRS - ARRIVE @ SITE

WELL ID	WL	TIME		
MM01R	2.89	11:26		
MM02R	2.20	11:20		
MM04	3.90	11:25		
SG@SLIP	5.70	11:30		
SAMPLE ID	START	END	SAMPLE TIME	COMMENTS
DA-MW01R-1213	1143	1248	1250	(TR)
DA-FD120413	"	"	0000	DUP FROM ABOVE WELL
DA-MW02R-1213	1135	1235	1240	(MM)
DA-MW04-1213	1310	1410	1415	MS/MSD(MM)

TR DID MNA FOR ABOVE WELLS
1520 HRS - LEFT SITE
1528 HRS - DROP OFF GATE KEY @ USCG MAIN

GATE
2030 HRS - ARRIVE @ MM RES.
2100 HRS - ARRIVE @ TR RES.

12/04/13

WED 12/04/13 (CWT)

HUCION ID
XG4LP2DD
(TR)
SG0DIE00
(MM)

TIME	TEMP	PH	COND.	DO	TURB
CAL					
PRE	14.73	4.62	4.65	12.88	0.0
POST	14.74	4.00	4.50	11.00	0.0
PRE	17.13	3.99	4.73	11.93	0.0
POST	17.13	4.00	4.49	10.20	0.0

**ATTACHMENT B
DISPOSAL MANIFEST**

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number MI2 890 308 471	2. Page 1 of 1	3. Emergency Response Phone (313) 347-1300	4. Manifest Tracking Number 010270182 JJK
5. Generator's Name and Mailing Address USCG SECTOR DETROIT C/O EARTH SMART ENV. 525 E. MICHIGAN AVE. #124 SALINE, MI 48178 Generator's Phone: (313) 588-8551			6. Recipient's Name and Mailing Address UNITED STATES COAST GUARD 2880 EAST ATWATER STREET DETROIT, MI 48207		
7. Transporter 1 Company Name EQ INDUSTRIAL SERVICES				U.S. EPA ID Number MI0 000 283 871	
7. Transporter 2 Company Name				U.S. EPA ID Number	
8. Designated Facility Name and Site Address EQ DETROIT, INC. 1923 FREDERICK DETROIT, MI 48211 Facility's Phone: (313) 347-1300				U.S. EPA ID Number MI0 000 991 506	
9a. HMI	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers		11. Total Quantity
			No.	Type	12. Unit Wt./Vol.
	1. Non Hazardous Liquid Waste, Not Del Not RCRA Regulated		001	DM	00250
	2.				
	3.				
				13. Waste Codes	
14. Special Handling Instructions and Additional Information F-108 184DET / Non Haz IDW Liquids					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Generator's/Officer's Printed/Typed Name Anthony G. Z. [Signature]				Signature [Signature]	
				Month Day Year 01 18 14	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Part of entry/exit: Date leaving U.S.:					
17. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name STEVEN LO				Signature [Signature]	
				Month Day Year 01 18 14	
Transporter 2 Printed/Typed Name				Signature [Signature]	
				Month Day Year	
18. Discrepancy					
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number:					
18b. Alternate Facility (or Generator)				U.S. EPA ID Number	
Facility's Phone:					
18c. Signature of Alternate Facility (or Generator)				Month Day Year	
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
1. LW	2.	3.	4.		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a					
Printed/Typed Name Tammy J. Ivole				Signature [Signature]	
				Month Day Year 11 18 14	



CERTIFICATE OF MANAGEMENT

This Certificate is to verify that the wastes specified on the following manifest(s) have been properly received and will be properly managed to meet all applicable local, state, and federal regulations.

<i>Generator Name:</i>	United States Coast Guard	
<i>Manifest/BOL Number:</i>	010270182JJK	
<i>Approval Number(s):</i>	F107164DET	

FACILITY NAME: EQ DETROIT, INC.

EPA ID#:MID980991566

ADDRESS: 1923 Frederick

PHONE NUMBER: 313-347-1300

FAX NUMBER: 313.923.3375

AUTHORIZED SIGNATURE: Brittani Berends on behalf of EQ Detroit

**ATTACHMENT C
LABORATORY REPORTS**



December 19, 2013

TETRA TECH NUS - Pittsburgh
Attn: Mr. Joe Logan
661 Anderson Drive, Foster Plaza 7
Pittsburgh, PA 15220

Project: USCG Atwater Facility

Dear Mr. Joe Logan,

Enclosed is a copy of the laboratory report for the following work order(s) received by TriMatrix Laboratories:

Work Order	Received	Description
1312099	12/06/2013	Laboratory Services

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Program (NELAP) and/or one of the following certification programs:

AClass DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#88-0730/12-056-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#200026/003059); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#83658); Michigan DPH (#0034); Minnesota DPH (#491715); New York ELAP (#11776/48855); North Carolina DNRE (#659); Texas CEQ (#T104704495-13-3); Virginia DCLS (#460153/1622); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-12-00236).

Any qualification or narration of results, including sample acceptance requirements and test exceptions to the above referenced programs, is presented in the Statement of Data Qualifications and Project Technical Narrative sections of this report. Estimates of analytical uncertainties and certification documents for the test results contained within this report are available upon request.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary L. Wood", written in a cursive style.

Gary L. Wood
Project Chemist



PROJECT TECHNICAL NARRATIVE(s)

Dissolved Metals by EPA 6000/7000 Series Methods

Narrative: This analyte was not present in this sample at a concentration greater than 100 times the MDL, therefore serial dilution is not required.

Analysis: USEPA-6020A

Sample/Analyte: 1312099-03 DA-MW04-1213

Zinc



PROJECT TECHNICAL NARRATIVE(s)

Total Metals by EPA 6000/7000 Series Methods

Narrative: This analyte was not present in this sample at a concentration greater than 100 times the MDL, therefore serial dilution is not required.

Analysis: USEPA-6020A

Sample/Analyte: 1312099-03 DA-MW04-1213

Zinc



STATEMENT OF DATA QUALIFICATIONS

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte:	1312099-03	DA-MW04-1213	Barium
	1312099-03	DA-MW04-1213	Zinc

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-MW01R-1213**
 Lab Sample ID: **1312099-01**
 Matrix: **Water**
 Unit: **ug/L**
 Dilution Factor: **1**
 QC Batch: **1313142**

Work Order: **1312099**
 Description: **Laboratory Services**
 Sampled: **12/4/13 12:50**
 Sampled By: **Mark Mengel**
 Received: **12/6/13 9:30**
 Prepared: **12/9/13 7:52** By: **ALK**
 Analyzed: **12/12/13 13:02** By: **JLB**
 Analytical Batch: **3L16014**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:
Nitrobenzene-d5
2-Fluorobiphenyl
o-Terphenyl
% Recovery
77
78
88
Control Limits
40-110
50-110
50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW01R-1213**
Lab Sample ID: **1312099-01**
Matrix: **Water**

Work Order: **1312099**
Description: **Laboratory Services**
Sampled: **12/4/13 12:50**
Sampled By: **Mark Mengel**
Received: **12/6/13 9:30**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	1.2	1.0	0.18	ug/L	1	USEPA-6020A	12/11/13 11:14	DSC	1313131
Barium	290	5.0	0.68	ug/L	5	USEPA-6020A	12/11/13 12:17	DSC	1313131
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	12/11/13 11:14	DSC	1313131
Chromium	1.0 U	1.0	0.20	ug/L	1	USEPA-6020A	12/11/13 14:37	DSC	1313131
Copper	0.66 J	1.0	0.13	ug/L	1	USEPA-6020A	12/11/13 11:14	DSC	1313131
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	12/11/13 11:14	DSC	1313131
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	12/11/13 14:20	DSC	1313164
Selenium	0.79 J	1.0	0.31	ug/L	1	USEPA-6020A	12/11/13 11:14	DSC	1313131
Silver	0.045 J	0.20	0.037	ug/L	1	USEPA-6020A	12/11/13 14:37	DSC	1313131
Zinc	6.6 J	10	1.5	ug/L	1	USEPA-6020A	12/11/13 11:14	DSC	1313131



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW01R-1213**
Lab Sample ID: **1312099-01**
Matrix: **Water**

Work Order: **1312099**
Description: **Laboratory Services**
Sampled: **12/4/13 12:50**
Sampled By: **Mark Mengel**
Received: **12/6/13 9:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	1.4	1.0	0.18	ug/L	1	USEPA-6020A	12/11/13 10:30	DSC	1313133
Barium	300	5.0	0.68	ug/L	5	USEPA-6020A	12/11/13 11:51	DSC	1313133
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	12/11/13 10:30	DSC	1313133
Chromium	1.0 U	1.0	0.20	ug/L	1	USEPA-6020A	12/11/13 10:30	DSC	1313133
Copper	1.3	1.0	0.13	ug/L	1	USEPA-6020A	12/11/13 10:30	DSC	1313133
Lead	0.39 J	1.0	0.15	ug/L	1	USEPA-6020A	12/11/13 10:30	DSC	1313133
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	12/11/13 13:24	DSC	1313162
Selenium	0.55 J	1.0	0.31	ug/L	1	USEPA-6020A	12/11/13 10:30	DSC	1313133
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	12/11/13 14:05	DSC	1313133
Zinc	7.8 J	10	1.5	ug/L	1	USEPA-6020A	12/11/13 10:30	DSC	1313133



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW02R-1213**
Lab Sample ID: **1312099-02**
Matrix: **Water**
Unit: **ug/L**
Dilution Factor: **1**
QC Batch: **1313142**

Work Order: **1312099**
Description: **Laboratory Services**
Sampled: **12/4/13 12:40**
Sampled By: **Mark Mengel**
Received: **12/6/13 9:30**
Prepared: **12/9/13 7:52** By: **ALK**
Analyzed: **12/12/13 13:37** By: **JLB**
Analytical Batch: **3L16014**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:

Nitrobenzene-d5

2-Fluorobiphenyl

o-Terphenyl

% Recovery

86

87

99

Control Limits

40-110

50-110

50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW02R-1213**
Lab Sample ID: **1312099-02**
Matrix: **Water**

Work Order: **1312099**
Description: **Laboratory Services**
Sampled: **12/4/13 12:40**
Sampled By: **Mark Mengel**
Received: **12/6/13 9:30**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	0.51 J	1.0	0.18	ug/L	1	USEPA-6020A	12/11/13 11:18	DSC	1313131
Barium	53	1.0	0.14	ug/L	1	USEPA-6020A	12/11/13 11:18	DSC	1313131
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	12/11/13 11:18	DSC	1313131
Chromium	0.37 J	1.0	0.20	ug/L	1	USEPA-6020A	12/11/13 14:39	DSC	1313131
Copper	0.57 J	1.0	0.13	ug/L	1	USEPA-6020A	12/11/13 11:18	DSC	1313131
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	12/11/13 11:18	DSC	1313131
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	12/11/13 14:25	DSC	1313164
Selenium	0.33 J	1.0	0.31	ug/L	1	USEPA-6020A	12/11/13 11:18	DSC	1313131
Silver	0.12 J	0.20	0.037	ug/L	1	USEPA-6020A	12/11/13 14:39	DSC	1313131
Zinc	5.6 J	10	1.5	ug/L	1	USEPA-6020A	12/11/13 11:18	DSC	1313131



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW02R-1213**
Lab Sample ID: **1312099-02**
Matrix: **Water**

Work Order: **1312099**
Description: **Laboratory Services**
Sampled: **12/4/13 12:40**
Sampled By: **Mark Mengel**
Received: **12/6/13 9:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	0.63 J	1.0	0.18	ug/L	1	USEPA-6020A	12/11/13 10:34	DSC	1313133
Barium	54	1.0	0.14	ug/L	1	USEPA-6020A	12/11/13 10:34	DSC	1313133
Cadmium	0.043 J	0.20	0.038	ug/L	1	USEPA-6020A	12/11/13 10:34	DSC	1313133
Chromium	0.39 J	1.0	0.20	ug/L	1	USEPA-6020A	12/11/13 10:34	DSC	1313133
Copper	0.57 J	1.0	0.13	ug/L	1	USEPA-6020A	12/11/13 10:34	DSC	1313133
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	12/11/13 10:34	DSC	1313133
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	12/11/13 13:30	DSC	1313162
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	12/11/13 10:34	DSC	1313133
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	12/11/13 14:08	DSC	1313133
Zinc	6.0 J	10	1.5	ug/L	1	USEPA-6020A	12/11/13 10:34	DSC	1313133

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-MW04-1213**
 Lab Sample ID: **1312099-03**
 Matrix: **Water**
 Unit: **ug/L**
 Dilution Factor: **1**
 QC Batch: **1313142**

Work Order: **1312099**
 Description: **Laboratory Services**
 Sampled: **12/4/13 14:15**
 Sampled By: **Mark Mengel**
 Received: **12/6/13 9:30**
 Prepared: **12/9/13 7:52** By: **ALK**
 Analyzed: **12/12/13 14:12** By: **JLB**
 Analytical Batch: **3L16014**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5
81
40-110
2-Fluorobiphenyl
80
50-110
o-Terphenyl
92
50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW04-1213**
Lab Sample ID: **1312099-03**
Matrix: **Water**

Work Order: **1312099**
Description: **Laboratory Services**
Sampled: **12/4/13 14:15**
Sampled By: **Mark Mengel**
Received: **12/6/13 9:30**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	3.3	1.0	0.18	ug/L	1	USEPA-6020A	12/11/13 11:22	DSC	1313131
Barium	170	5.0	0.68	ug/L	5	USEPA-6020A	12/11/13 12:21	DSC	1313131
Cadmium	0.075 J	0.20	0.038	ug/L	1	USEPA-6020A	12/11/13 11:22	DSC	1313131
Chromium	1.0 U	1.0	0.20	ug/L	1	USEPA-6020A	12/11/13 14:42	DSC	1313131
Copper	0.25 J	1.0	0.13	ug/L	1	USEPA-6020A	12/11/13 11:22	DSC	1313131
Lead	1.4	1.0	0.15	ug/L	1	USEPA-6020A	12/11/13 11:22	DSC	1313131
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	12/11/13 14:31	DSC	1313164
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	12/11/13 11:22	DSC	1313131
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	12/11/13 14:42	DSC	1313131
Zinc	84	50	7.5	ug/L	5	USEPA-6020A	12/11/13 12:21	DSC	1313131



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW04-1213**
Lab Sample ID: **1312099-03**
Matrix: **Water**

Work Order: **1312099**
Description: **Laboratory Services**
Sampled: **12/4/13 14:15**
Sampled By: **Mark Mengel**
Received: **12/6/13 9:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	3.6	1.0	0.18	ug/L	1	USEPA-6020A	12/11/13 10:37	DSC	1313133
*Barium	170	5.0	0.68	ug/L	5	USEPA-6020A	12/11/13 11:55	DSC	1313133
Cadmium	0.085 J	0.20	0.038	ug/L	1	USEPA-6020A	12/11/13 10:37	DSC	1313133
Chromium	0.35 J	1.0	0.20	ug/L	1	USEPA-6020A	12/11/13 10:37	DSC	1313133
Copper	0.43 J	1.0	0.13	ug/L	1	USEPA-6020A	12/11/13 10:37	DSC	1313133
Lead	3.7	1.0	0.15	ug/L	1	USEPA-6020A	12/11/13 10:37	DSC	1313133
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	12/11/13 13:35	DSC	1313162
Selenium	0.37 J	1.0	0.31	ug/L	1	USEPA-6020A	12/11/13 10:37	DSC	1313133
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	12/11/13 14:11	DSC	1313133
*Zinc	90	50	7.5	ug/L	5	USEPA-6020A	12/11/13 11:55	DSC	1313133

*See Statement of Data Qualifications



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-FD120413**
Lab Sample ID: **1312099-04**
Matrix: **Water**
Unit: **ug/L**
Dilution Factor: **1**
QC Batch: **1313142**

Work Order: **1312099**
Description: **Laboratory Services**
Sampled: **12/4/13 0:00**
Sampled By: **Mark Mengel**
Received: **12/6/13 9:30**
Prepared: **12/9/13 7:52** By: **ALK**
Analyzed: **12/12/13 14:47** By: **JLB**
Analytical Batch: **3L16014**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:

Nitrobenzene-d5

72

40-110

2-Fluorobiphenyl

71

50-110

o-Terphenyl

81

50-135

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-FD120413**
 Lab Sample ID: **1312099-04**
 Matrix: **Water**

Work Order: **1312099**
 Description: **Laboratory Services**
 Sampled: **12/4/13 0:00**
 Sampled By: **Mark Mengel**
 Received: **12/6/13 9:30**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	1.5	1.0	0.18	ug/L	1	USEPA-6020A	12/11/13 11:40	DSC	1313131
Barium	300	5.0	0.68	ug/L	5	USEPA-6020A	12/11/13 12:47	DSC	1313131
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	12/11/13 11:40	DSC	1313131
Chromium	0.20 J	1.0	0.20	ug/L	1	USEPA-6020A	12/11/13 14:55	DSC	1313131
Copper	0.68 J	1.0	0.13	ug/L	1	USEPA-6020A	12/11/13 11:40	DSC	1313131
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	12/11/13 11:40	DSC	1313131
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	12/11/13 14:48	DSC	1313164
Selenium	0.79 J	1.0	0.31	ug/L	1	USEPA-6020A	12/11/13 11:40	DSC	1313131
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	12/11/13 14:55	DSC	1313131
Zinc	7.1 J	10	1.5	ug/L	1	USEPA-6020A	12/11/13 11:40	DSC	1313131



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-FD120413**
Lab Sample ID: **1312099-04**
Matrix: **Water**

Work Order: **1312099**
Description: **Laboratory Services**
Sampled: **12/4/13 0:00**
Sampled By: **Mark Mengel**
Received: **12/6/13 9:30**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	1.3	1.0	0.18	ug/L	1	USEPA-6020A	12/11/13 10:56	DSC	1313133
Barium	300	5.0	0.68	ug/L	5	USEPA-6020A	12/11/13 12:14	DSC	1313133
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	12/11/13 10:56	DSC	1313133
Chromium	1.0 U	1.0	0.20	ug/L	1	USEPA-6020A	12/11/13 10:56	DSC	1313133
Copper	1.2	1.0	0.13	ug/L	1	USEPA-6020A	12/11/13 10:56	DSC	1313133
Lead	0.41 J	1.0	0.15	ug/L	1	USEPA-6020A	12/11/13 10:56	DSC	1313133
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	12/11/13 14:03	DSC	1313162
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	12/11/13 10:56	DSC	1313133
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	12/11/13 14:24	DSC	1313133
Zinc	6.3 J	10	1.5	ug/L	1	USEPA-6020A	12/11/13 10:56	DSC	1313133



TETRA TECH NUS, INC.

CHAIN OF CUSTODY

NUMBER No

2149

PAGE 1 OF 1

47-9

1g. Blue 1312099 Cart 3

PROJECT NO: 112602435	FACILITY: DETROIT-ATWATER	PROJECT MANAGER JOE LOGAN	PHONE NUMBER 412-921-7231	LABORATORY NAME AND CONTACT: TRIMATRIX - GARY WOOD
SAMPLERS (SIGNATURE) Mark H. Mengel	FIELD OPERATIONS LEADER MARK MENDEL	PHONE NUMBER 724-777-0035	ADDRESS 5560 CORPORATE EXCHANGE CT	CITY, STATE GRAND RAPIDS, MI 49512
CARRIER/WAYBILL NUMBER 8020 3157 7248				

STANDARD TAT <input checked="" type="checkbox"/> RUSH TAT <input type="checkbox"/>	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED
<input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 72 hr. <input type="checkbox"/> 7 day <input type="checkbox"/> 14 day		

DATE YEAR	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS				COMMENTS
									PAHs	TOTAL METALS	DISSOLVED METALS	OTHER	
12/4	1250	DA-MW01R-1213	MW01R	-	-	GW	6	4	2	1	1		01
12/4	1240	DA-MW02R-1213	MW02R	-	-	GW	6	4	2	1	1		02
12/4	1415	DA-MW04-1213	MW04	-	-	GW	6	6	4	1	1		03 Run m/m/m/d
12/4	0000	DA-FD120413	QC	-	-	GW	6	4	2	1	1		04

1. RELINQUISHED BY Mark H. Mengel	DATE 12-5-13	TIME	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY Lyn Roney Trimatrix Labs	DATE 12/13/13	TIME 0730

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

FORM NO. TMLUS-001

ATTACHMENT D
DATA VALIDATION REPORT
(on pdf)

MARCH 2014 EVENT

**TETRA TECH**

661 Andersen Drive ■ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7000 ■ FAX (412) 921-4040 ■ www.tetrattech.com

PITT 04-14-002

May 1, 2014

Mr. James Cook
Environmental Engineer
USCG Civil Engineering Unit
1240 East Ninth St., Rm. 2179
Cleveland, OH 44199-2060

Reference: Contract Number HSCG83-08-D-3CL109
Task Order Number HSCG83-09-J-3CL358

Subject: Groundwater Monitoring Report (March 2014 Event and Annual Summary) for U.S. Coast Guard Atwater Facility

Dear Mr. Cook:

Tetra Tech, Inc. (Tt) is pleased to submit this quarterly Groundwater Monitoring Letter Report for the referenced Task Order for the United States Coast Guard (USCG) Atwater Facility in Detroit, Michigan. The objective of this portion of the project includes quarterly monitoring of the groundwater associated with the Atwater Facility (Figure 1) following the removal action conducted in April 2013. The sampling is being performed according to Modification 004 of the Task Order.

Four quarterly groundwater sampling events were planned. The first event was performed in June 2013, the second event was performed in September 2013, and the third event was performed in December 2013. The fourth and final event, described in this report, was performed in March 2014. Field activities and groundwater analytical results for the March 2014 event are summarized in this report. The report also summarizes any trends observed over the four events. The work was performed in accordance to the Field Sampling Plan - Soil and Groundwater (Tetra Tech, 2011) and the Quality Assurance Project Plan Addendum (Tetra Tech, 2011).

FIELD OPERATIONS

Groundwater Sampling

Depth-to-water measurements were obtained at the three monitoring wells and to the Detroit River on March 18, 2014. Water level depths in the wells ranged from 1.50 (MW01R) to 3.27 (MW04) feet below top of casing (BTOC). Groundwater elevation data is provided in Table 1.

The groundwater level elevations in the three wells were higher during the March 2014 event as compared to the December 2013 event (1.39 foot, 0.15 foot, and 0.63 foot, respectively). The river level elevation was also higher during the March 2014 event as compared to the December 2013 event (0.28 foot). The groundwater flow direction was toward the river.

On March 18, 2014, Tt collected groundwater samples from the three monitoring wells, MW01R, MW02R, and MW04. A duplicate sample was collected from MW01R. Samples were collected using low flow methods. Copies of the Groundwater Sample Log Sheets and Low Flow Purge Data Sheets are included in Attachment A. Following collection, the groundwater samples were shipped to Trimatrix Laboratories in Grand Rapids, Michigan for analysis of polynuclear aromatic hydrocarbons (PAHs) by EPA Method

SW846 8310 and for total and dissolved Michigan 10 metals by EPA Methods 6020A and 7470A. Groundwater for dissolved metals analyses was filtered in the field using a 0.45 micron filter. Purge water was drummed and was subsequently disposed of off-site by EarthSmart Environmental Solutions, LLC after confirming the results of the groundwater analyses (see Attachment B).

Groundwater samples were also analyzed for geochemical parameters using field kits and meters. The field kit analyses included dissolved oxygen (DO), alkalinity, carbon dioxide, ferrous iron, sulfide, and sulfate. The field meter measurements included pH and oxidation-reduction potential (ORP).

RESULTS

Laboratory Results

The analytical results for this event are summarized in Table 2. This table also includes the results from the previous sampling events. A copy of the laboratory summary report for this event is provided in Attachment C. The data validation report is included in Attachment D as a pdf file on a CD.

The PAH analytical results were not significantly different from the 2011/2012 sampling events and the June, September, and December 2013 events. For the March 2014 event, the PAHs were less than detection limits in the wells (like the December 2013 event). In the past four events, PAHs were not detected in MW01R and MW02R and only trace concentrations of two PAHs (benzo(a)anthracene and chrysene) were detected in MW04 detected during the June 2013 event. The concentrations of PAHs in the wells were less than the Michigan Department of Environmental Quality (MDEQ) residential exposure criteria.

At MW01R, the total metals concentrations and dissolved metals concentrations were similar to previous results at MW01, except for arsenic. The total arsenic concentrations (sample and duplicate) in the sample from MW01R were 2.6 µg/L and 2.7 µg/L, respectively, and the dissolved arsenic concentrations (sample and duplicate) were 2.0 µg/L and 2.3 µg/L, respectively. The range of total arsenic concentrations from the 2011/2012 samples from MW01 was 0.52 µg/L to 1.5 µg/L, and the range of dissolved arsenic concentrations was 0.6 µg/L to 0.95 µg/L. The March 2014 concentrations were slightly greater than the December 2013 concentrations and are less than those from the June 2013 event. Although the arsenic concentrations were elevated for this round, they are less than the United States Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL) of 10 µg/L.

At MW02R, the total metals concentrations and dissolved metals concentrations were similar to previous results at MW02. The total arsenic concentration in the sample from MW02R was estimated at 0.49 µg/L, and the dissolved arsenic concentration was estimated at 0.44 µg/L. The range of total arsenic concentrations from the 2011/2012 samples from MW02 was 6.2 µg/L to 14 µg/L, and the range of dissolved arsenic concentrations was estimated at 1 µg/L to 12 µg/L. The March 2014 arsenic concentrations were slightly less than the December 2013 concentrations and were similar to the June 2013 event concentrations. The arsenic concentrations for this round are less than the USEPA MCL of 10 µg/L.

Total metals concentrations and dissolved metals concentrations in MW04 were generally similar to the previous results, except for arsenic. The total arsenic concentration in the sample was estimated at 0.76 µg/L, and the dissolved arsenic concentration was estimated at 0.56 µg/L, which were less than the concentrations in the December 2013 event (3.3 µg/L and 3.6 µg/L, respectively). The range of total arsenic concentrations from the 2011/2012 samples and the June 2013 event estimated at 0.87 µg/L to 3.8 µg/L, and the range of dissolved arsenic concentrations was estimated at 0.84 µg/L to 3.6 µg/L. The March 2014 arsenic concentrations were significantly less than the maximum value observed in September 2013 and are within the range of previous measurements. The March 2014 arsenic concentrations were less than the June 2013 concentrations and still less than the USEPA MCL of 10 µg/L.

In summary, the concentrations of metals and PAHs of the four quarters of sampling were less than the selected criteria. For metals, only arsenic had concentrations greater than its MCL during previous sampling events. The arsenic concentrations for MW01R were initially high, but declined over the course of the sampling program. These concentrations were generally greater than the 2011/2012 results. However, this monitoring well is the upgradient well, and the results suggest a possible off-site source of arsenic. The arsenic results for MW02R were well below the MCL and were significantly less than the 2011/2012 results. The arsenic concentrations from MW04 showed more variability compared to the other wells, but ended with a downward trend. Except for one result, the concentrations were similar to those measured in 2011/2012.

The PAHs were less than the criteria, and the concentrations were less than detection limits during the last three sampling events, and there were only trace concentrations of two compounds in the first event.

Field Measurements

Groundwater samples were analyzed in the field using field kits and meters to evaluate the geochemistry and its effects on contaminant concentrations and the potential for biological activity. Samples were analyzed for DO, alkalinity, carbon dioxide, ferrous iron, sulfide, and sulfate with field kits, and pH and ORP were measured with field meters. These results are summarized on Table 3.

The results for MW01R continue to suggest anaerobic biological activity. The DO was low, and the ORP was negative. The ORP result was much more negative compared to previous measurements from MW01 and MW01R. Alkalinity, carbon dioxide, and ferrous iron concentrations were relatively high, which are also typical of anaerobic biological activity. Sulfide was detected. The sulfate concentration was greater than the last event, and the pH was in the neutral range.

The results from MW02R showed some differences from the last event. The DO was 1.5 mg/L, similar to the last event. The ORP was positive and greater than the last event. The ORP results from previous measurements at MW02 were negative. The alkalinity concentration was less than the result from MW01R, and the carbon dioxide concentration was approximately one third of the result from MW01R. The ferrous iron and sulfide concentrations were less than detection limits which suggests the absence of anaerobic activity. The sulfate concentration was slightly higher than the previous result, and the pH was in the neutral range.

The MW04 results showed differences from the last event. The DO was 2 mg/L compared to 0.5 to 1 mg/L in the previous events, and the ORP was 158 mV compared to the previous negative ORP results. The alkalinity and carbon dioxide concentrations were less than the last three events, and ferrous iron was not detected. No sulfide was detected, and the sulfate concentration was similar to the previous events and less than the concentration in both MW01R and MW02R. The pH was in the neutral range. The positive ORP, high DO, and absence of ferrous iron and sulfide suggest aerobic conditions. Unlike previous events, the results were not similar to the results from the upgradient well, MW01R. The low sulfate concentration suggests influence from off-site. As noted in the Removal Action Completion Report, the results of soil samples collected at the border of the site suggest that the adjacent property could be a source of organic contaminants.

In summary, over the course of the four sampling events, the field parameters showed variability and only a few conclusions about the geochemistry can be made:

- The results from the upgradient well MW01R suggest anaerobic biological activity which appears to originate from an off-site source.
- At MW02R, the changes in ORP from negative to positive (compared to the 2011/2012 data) and the absence of ferrous iron and sulfide suggest aerobic conditions and the absence of organic compounds in the groundwater.

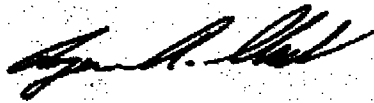
- At MW04, the change in ORP from negative to positive and the absence of ferrous iron and sulfide in the final event suggest a change from anaerobic to aerobic conditions. However, contaminants observed in soil samples at the edge of the site suggest that site groundwater quality could be affected by off-site sources.

CONCLUSIONS AND RECOMMENDATIONS

Concentrations of PAHs and metals were less than USEPA and MDEQ criteria during this sampling event and the previous three events. PAH concentrations were generally less than detection limits. The arsenic concentrations in MW01R and MW02R were similar to the last event, and the arsenic concentrations in MW04 decreased further in the last event. The results of the geochemistry field measurements are not definitive, but suggest anaerobic biological activity off-site and a change from anaerobic conditions to aerobic conditions on-site. No further monitoring is recommend.

Should you have any questions, please contact the Project Manager, Mr. Joseph Logan at (412) 921-7231 or me at (412) 921-8415.

Very truly yours,



Roger A. Clark, Ph.D.
Program Manager

RAC

cc: file 112G02435
Joseph Logan

TABLES

TABLE 1

**WATER LEVEL MEASUREMENTS
QUARTERLY MONITORING REPORT FOR MARCH 2014 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN**

Well ID	Ground Surface Elevation (feet, NAVD 88)	Top of Casing (feet, NAVD 88)	Screened Interval		6/6/2011		9/14/2011		12/16/2011		3/6/2012		6/25/2013		9/17/2013		12/4/2013		3/18/2014	
			Top (feet bgs)	Bottom (feet bgs)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)	Depth to Water (feet BTOC)	Water Level (feet, NAVD 88)
MW01	579.58	579.53	3.0	13.0	2.22	577.31	1.70	577.83	1.00	578.53	1.43	578.10	ABAN	-	ABAN	-	ABAN	-	ABAN	-
MW01R	579.69	579.49	3.0	13.0	-	-	-	-	-	-	-	-	2.63	576.86	4.02	575.47	2.89	576.60	1.50	577.99
MW02	579.54	579.62	3.0	13.0	3.95	575.67	3.32	576.30	3.20	576.42	3.42	576.20	ABAN	-	ABAN	-	ABAN	-	ABAN	-
MW02R	579.07	578.83	3.0	13.0	-	-	-	-	-	-	-	-	2.67	576.16	3.42	575.41	2.20	576.63	2.05	576.78
MW03	579.33	579.00	3.0	13.0	3.89	575.11	3.94	575.06	4.08	574.92	4.26	574.74	ABAN	-	ABAN	-	ABAN	-	ABAN	-
MW04	578.68	578.11	3.0	13.0	3.18	574.93	3.05	575.06	2.49	575.62	3.30	574.81	3.58	574.53	3.80	574.31	3.90	574.21	3.27	574.84
River Level	578.69	NA	NA	NA	3.85	574.84	4.50	574.19	4.20	574.49	4.78	573.91	NM	NM	4.95	573.74	5.70	572.99	5.42	573.27

Notes:

bgs - below ground

ABAN - Abandoned.

BTOC - below top of casing.

NA - Not Applicable.

NAVD - North American Vertical Datum.

NM - Not measured.

TABLE 2

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR MARCH 2014 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 1 OF 4

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs DISSOLVED METALS (UG/L)	Federal MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW01				DAMW01R							
					6/6/2011 3 13	9/14/2011 3 13	12/16/2011 3 13	3/6/2012 3 13	6/25/2013 3 13	6/25/2013-D 3 13	9/17/2013 3 13	9/17/2013-D 3 13	12/4/2013 3 13	12/4/2013-D 3 13	3/18/2014 3 13	3/18/2014-D 3 13
ARSENIC	10	10	10	10	0.95 J	0.73 J	0.36 J	0.6 J	5	4.9	2.8	3.1	1.2	1.5	2	2.3
BARIUM	2000	2000	670	2000	190 J	300	260	250	300	290	300 J	320 J	290	300	230	250
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.14 J	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHROMIUM	100	100	100	100	0.3 J	0.27 J	1 U	1 U	0.71 U	0.86 U	0.38 J	0.4 J	0.5 U	0.2 J	0.3 J	0.5 U
COPPER	1300	1000	13	1300	0.44 J	0.61 J	0.28 J	1 U	0.73 J	0.55 J	0.94 J	0.78 J	0.66 J	0.68 J	0.74 J	0.66 J
LEAD	15	2	14	15	0.17 J	0.18 J	1 U	1 UJ	0.56 J	0.41 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SELENIUM	50	50	5	50	5 UJ	1.1 J	5 U	5 U	1 U	1 U	1 U	1 U	0.79 J	0.79 J	0.6 U	1.2 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.045 J	0.1 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	5.5	6.7	6.5 U	10 U	7 J	2.9 J	2.9 J	4.5 J	6.6 J	7.1 J	1.7 J	2.5 J
METALS (UG/L)																
ARSENIC	10	10	10	10	1.5 J	1 J	0.52 J	0.63 J	4.6	5.1	3.2	3.5	1.4	1.3	2.6	2.7
BARIUM	2000	2000	670	2000	210	300	260	240	290	300	310 J	310 J	300 J	300 J	230	230
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.79 J	0.06 J	0.044 J	0.04 J	0.039 J	0.1 U	0.1 U	0.1 U	0.043 J	0.1 U
CHROMIUM	100	100	100	100	0.31 J	0.25 J	0.57 J	1 U	0.54 J	0.54 J	0.5 J	0.46 J	0.5 U	0.5 U	0.33 J	0.3 J
COPPER	1300	1000	13	1300	0.74 J	0.79 J	0.98 J	1 U	0.71 J	0.81 J	0.9 J	0.42 J	1.3	1.2	1.1	1
LEAD	15	2	14	15	0.73 J	1	0.63 J	0.26 J	2	2.1	0.15 J	0.5 U	0.39 J	0.41 J	0.23 J	0.23 J
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	5 U	0.69 U	1 U	1 U	1 U	0.55 J	1 U	0.92 U	1.4 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.055 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	6.9 J	9.4	10	4 J	2.7 J	4.7 J	4.5 J	5.2 J	7.8 J	6.3 J	4.4 J	3.4 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)																
2-METHYLNAPHTHALENE	NC	260	19	260	0.5 U	0.5 U	0.5 U	0.5 U	0.054 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	0.5 U	0.031 J	0.5 U	0.03 J	0.054 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	0.5 U	0.5 U	0.5 U	0.5 U	0.054 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
ANTHRACENE	NC	43	ID	43	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.051 J	0.06 J	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.1 J	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.041 J	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
FLUORENE	NC	880	12	880	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.22 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	NC	520	11	520	0.5 U	0.5 U	0.5 U	0.04 J	0.054 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
PHENANTHRENE	NC	52	2	52	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
PYRENE	NC	140	ID	140	0.5 U	0.5 U	0.5 U	0.5 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

1 - For comparison only.

J - Estimated Concentration.

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D - Duplicate sample

Shaded cell indicates concentration greater than selected criterion.

bgs - Below ground surface.

GSI - Groundwater-surface water interface

ID - Insufficient data to develop criterion.

MCL - Maximum Contaminant Level.

NC - No criterion.

RBSL - Risk-Based Screening Level

TABLE 2

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR MARCH 2014 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 2 OF 4

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs	Federal MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW02						DAMW02R			
					6/6/2011 3 13	9/14/2011 3 13	12/16/2011 3 13	12/16/2011-D 3 13	3/6/2012 3 13	3/6/2012-D 3 13	6/25/2013 3 13	9/17/2013 3 13	12/4/2013 3 13	3/18/2014 3 13
					DISSOLVED METALS (UG/L)									
ARSENIC	10	10	10	10	1 J	9	9.3	9.2	12	12	0.55 J	1.5	0.51 J	0.44 U
BARIUM	2000	2000	670	2000	200 J	150	110	100	87	89	100	77 J	53	42
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.058 J	0.046 J	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.073 J
CHROMIUM	100	100	100	100	0.47 J	0.45 J	0.36 J	0.37 J	1 U	1 U	0.79 U	0.27 J	0.37 J	0.97 J
COPPER	1300	1000	13	1300	0.42 J	0.16 J	1 U	0.28 J	1 U	1 U	1.3	0.8 J	0.57 J	1.2
LEAD	15	2	14	15	0.2 J	1 U	1 U	1 U	1 UJ	1 UJ	0.5 U	0.5 U	0.5 U	0.5 U
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	5 U	0.39 J	1.3 J	1.4 U	1 U	0.33 J	1 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.12 J	0.1 U
ZINC	NC	2400	170	2400	5 U	5 U	6.9 U	7.8 U	10 U	10 U	3.7 J	5.7 J	5.6 J	6.4 J
METALS (UG/L)														
ARSENIC	10	10	10	10	6.2	12	9.5	10	14	14	0.58 J	1.4	0.63 J	0.49 U
BARIUM	2000	2000	670	2000	150	160	110	110	86	84	110	75 J	54 J	42
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.73 J	0.054 J	0.1 J	0.11 J	0.042 J	0.1 U	0.043 J	0.1 J
CHROMIUM	100	100	100	100	0.33 J	0.51 J	0.39 J	0.38 J	1 U	1.3 U	0.98 J	0.22 J	0.39 J	0.94 J
COPPER	1300	1000	13	1300	1.2	0.29 J	0.19 J	0.39 J	1 U	1 U	1.3	0.8 J	0.57 J	1.1
LEAD	15	2	14	15	0.85 J	0.39 J	0.16 J	0.23 J	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U
SELENIUM	50	50	5	50	1 J	1.5 J	5 U	5 U	5 U	0.55 J	1 U	1 U	1 U	0.86 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	3.9 J	6.4	8.6	10	7.6 J	3.2 J	2.8 J	4.8 J	6 J	2 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)														
2-METHYLNAPHTHALENE	NC	260	19	260	24 J	43	42	33	50	49	0.05 U	0.05 U	0.05 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	6 J	14	10	7.7 J	6.9	6.6	0.05 U	0.05 U	0.05 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	1.7 J	3.8 J	3.7 J	2.6 J	3.9 J	3.7 J	0.05 U	0.05 U	0.05 U	0.05 U
ANTHRACENE	NC	43	ID	43	3.8 J	4.8 J	3.1 J	2.2 J	6.3	4.6 J	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.28 J	1.3 J	1.2 J	10 U	0.92 J	0.72 J	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 UJ	1 J	10 U	10 U	5 U	5 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.05 J	12 U	10 U	10 U	0.41 J	5 U	0.1 U	0.1 U	0.1 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.1 J	12 U	10 U	10 U	5 U	5 U	0.1 U	0.1 U	0.1 U	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.2 U	0.2 U	0.2 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.52 J	1.5 J	1 J	0.81 J	0.92 J	0.82 J	0.1 U	0.1 U	0.1 U	0.1 U
FLUORENE	NC	880	12	880	3.5 J	13	24	19	21	21	0.1 U	0.1 U	0.1 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 UJ	12 U	10 U	10 U	5 U	5 U	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	NC	520	11	520	120	170	170	130	180	180	0.05 U	0.05 U	0.05 U	0.05 U
PHENANTHRENE	NC	52	2	52	8.8 J	11 J	11	8.3 J	12	12	0.1 U	0.1 U	0.1 U	0.1 U
PYRENE	NC	140	ID	140	0.39 J	1.5 J	1 J	10 U	0.92 J	0.82 J	0.1 U	0.1 U	0.1 U	0.1 U

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QUARTERLY MONITORING REPORT FOR MARCH 2014 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 3 OF 4**

LOCATION	Federal MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW03					
SAMPLE DATE					6/6/2011	6/6/2011-D	9/14/2011	9/14/2011-D	12/16/2011	3/6/2012
TOP OF SCREEN, FEET bgs					3	3	3	3	3	3
BOTTOM OF SCREEN, FEET bgs	13	13	13	13	13	13				
DISSOLVED METALS (UG/L)										
ARSENIC	10	10	10	10	2.7 J	2.7 J	4.3 J	4.1 J	1.3 J	0.71 J
BARIUM	2000	2000	670	2000	310 J	300 J	370	360	310	270
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHROMIUM	100	100	100	100	0.21 J	1 U	0.22 J	0.23 J	1 U	1 U
COPPER	1300	1000	13	1300	1 U	1 U	1 U	0.15 J	0.25 J	1 U
LEAD	15	2	14	15	1 U	1 U	1 U	1 U	1 U	1 UJ
SELENIUM	50	50	5	50	5 UJ	5 UJ	0.97 J	0.96 J	5 U	5 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ZINC	NC	2400	170	2400	4.2 J	3.9 J	5.5	5 U	7.7 U	10 U
METALS (UG/L)										
ARSENIC	10	10	10	10	2.6 J	2.5 J	4.8 J	4.4 J	1.3 J	0.75 J
BARIUM	2000	2000	670	2000	290	290	370	340	300	270
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.37 U	1.1 J	0.051 J	0.2 U
CHROMIUM	100	100	100	100	0.29 J	0.27 J	0.24 J	0.24 J	0.22 J	1 U
COPPER	1300	1000	13	1300	0.77 J	1 U	0.3 J	0.37 J	0.39 J	1 U
LEAD	15	2	14	15	0.47 J	0.33 J	0.7 J	0.57 J	1.2	0.18 J
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 U
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ZINC	NC	2400	170	2400	8.5 J	4.6 J	10	8.4	8.4	2 J
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)										
2-METHYLNAPHTHALENE	NC	260	19	260	0.07 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ACENAPHTHENE	NC	1300	38	1300	1.6	1.6	2.6	2.9	1.5	1.6
ACENAPHTHYLENE	NC	52	ID	52	0.05 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ANTHRACENE	NC	43	ID	43	0.22 J	0.19 J	0.23 J	0.23 J	0.092 J	0.13 J
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.072 J	0.051 J	0.041 J	0.051 J
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.052 J	0.5 U	0.5 U	0.5 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.082 J
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
FLUORANTHENE	NC	210	1.6	210	0.2 J	0.15 J	0.27 J	0.23 J	0.11 J	0.11 J
FLUORENE	NC	880	12	880	0.36 J	0.27 J	0.19 J	0.28 J	0.13 J	0.13 J
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.14 J
NAPHTHALENE	NC	520	11	520	0.19 J	0.11 J	0.062 J	0.5 U	0.5 U	0.5 U
PHENANTHRENE	NC	52	2	52	1.2	1	1.4	1.5	0.6	0.67
PYRENE	NC	140	ID	140	0.15 J	0.13 J	0.23 J	0.24 J	0.1 J	0.082 J

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TABLE 2

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR MARCH 2014 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 4 OF 4

LOCATION SAMPLE DATE TOP OF SCREEN, FEET bgs BOTTOM OF SCREEN, FEET bgs	Federal MCL	Michigan Residential RBSL	Michigan GSI RBSL (1)	Selected Criteria	DAMW04							
					6/6/2011 3 13	9/14/2011 3 13	12/16/2011 3 13	3/6/2012 3 13	6/25/2013 3 13	9/17/2013 3 13	12/4/2013 3 13	3/18/2014 3 13
DISSOLVED METALS (UG/L)												
ARSENIC	10	10	10	10	3 J	3.6 J	1.2 J	0.84 J	1.9	7	3.3	0.56 U
BARIUM	2000	2000	670	2000	150 J	210	130	130	190	190 J	170	99
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.2 U	0.19 J	0.31	0.1 U	0.075 J	0.27
CHROMIUM	100	100	100	100	1 U	1 U	0.23 J	1 U	0.83 U	0.5 U	0.5 U	0.43 J
COPPER	1300	1000	13	1300	0.88 J	0.6 J	0.32 J	1 U	1.9	0.44 J	0.25 J	3.4
LEAD	15	2	14	15	0.44 J	0.45 J	0.17 J	2.8 J	3	1.2	1.4	1.4
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	0.73 J	2.6	1 U	1 U	10
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	110	100	100	140	180	94 J	84	99 J
METALS (UG/L)												
ARSENIC	10	10	10	10	3 J	3.8 J	1.1 J	0.87 J	1.4	7.3	3.6	0.76 U
BARIUM	2000	2000	670	2000	150	210	130	130	190	190 J	170 J	99
CADMIUM	5	5	2.5	5	0.2 U	0.2 U	0.091 J	0.25	0.34	0.1 U	0.085 J	0.29
CHROMIUM	100	100	100	100	0.36 J	1 U	1 U	1 U	0.71 J	0.21 J	0.35 J	0.42 J
COPPER	1300	1000	13	1300	2.6	1.8	0.64 J	1 U	1.4	0.45 J	0.43 J	3.8
LEAD	15	2	14	15	2.1	3.3	1.8	2.8	3.8	2.4	3.7	3.5
SELENIUM	50	50	5	50	5 UJ	5 UJ	5 U	0.79 J	4.9	1 U	0.37 J	9.4
SILVER	NC	34	0.2	34	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
ZINC	NC	2400	170	2400	110 J	120	110	150	190	99 J	90 J	99
POLYNUCLEAR AROMATIC HYDROCARBONS (UG/L)												
2-METHYLNAPHTHALENE	NC	260	19	260	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U
ACENAPHTHENE	NC	1300	38	1300	0.05 J	0.03 J	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U
ACENAPHTHYLENE	NC	52	ID	52	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U
ANTHRACENE	NC	43	ID	43	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(A)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.19 J	0.5 U	0.062 J	0.1 U	0.1 U	0.1 U
BENZO(A)PYRENE	0.2	5	ID	0.2	0.5 U	0.5 U	0.24 J	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(B)FLUORANTHENE	NC	1.5	ID	1.5	0.5 U	0.5 U	0.22 J	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
BENZO(K)FLUORANTHENE	NC	1	NC	1	0.5 U	0.5 U	0.27 J	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
CHRYSENE	NC	1.6	ID	1.6	0.5 U	0.5 U	0.22 J	0.5 U	0.052 J	0.1 U	0.1 U	0.1 U
DIBENZO(A,H)ANTHRACENE	NC	2	ID	2	0.5 U	0.5 U	0.14 J	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U
FLUORANTHENE	NC	210	1.6	210	0.5 U	0.5 U	0.04 J	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
FLUORENE	NC	880	12	880	0.5 U	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
INDENO(1,2,3-CD)PYRENE	NC	2	ID	2	0.5 U	0.5 U	0.14 J	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	NC	520	11	520	0.05 J	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U
PHENANTHRENE	NC	52	2	52	0.05 J	0.5 U	0.5 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U
PYRENE	NC	140	ID	140	0.04 J	0.5 U	0.061 J	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U

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TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR MARCH 2014 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 1 OF 4**

LOCATION	DAMW01				DAMW01R			
SAMPLE DATE	6/6/11	9/14/11	12/16/11	3/6/12	6/25/13	9/17/13	12/4/13	3/18/14
Appearance	clear	clear	clear	clear	clear	clear	clear	clear

Purge Meter Measurements

pH (SU)	6.8	6.5	6.8	7.0	7.0	6.6	7.2	7.0
Specific Conductivity (mS/cm)	0.992	1.04	1.08	1.02	0.922	1.13	1.04	0.799
Temperature (°C)	18.4	20.3	9.5	7.0	19.3	19.3	11.3	8.2
Turbidity (NTU)	0.0	0.0	8.8	5.1	7.4	1.0	0.0	9.7
Dissolved Oxygen (mg/L)	0.0	0.26	0.0	2.08	0.38	0.39	0.7	5.4
ORP (mV)	-176	-158	-204	-98	-84	-122	-213	-206

Field Test Kits

Dissolved Oxygen (mg/L)	NM	NM	NM	NM	0.9	0.7	0.9	1
Alkalinity (ppm)	NM	NM	NM	NM	375	350	300	400
Carbon Dioxide (ppm)	NM	NM	NM	NM	75	85	110	35
Ferrous Iron (ppm)	NM	NM	NM	NM	1.4	2.3	1.2	1
Sulfide (ppm)	NM	NM	NM	NM	0.05	0.9	0.9	0.7
Sulfate (ppm)	NM	NM	NM	NM	51	8	55	72

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR MARCH 2014 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 2 OF 4**

LOCATION	DAMW02				DAMW02R			
SAMPLE DATE	6/6/11	9/14/11	12/16/11	3/6/12	6/25/13	9/17/13	12/4/13	3/18/14
Appearance	clear	clear	clear	clear w/black specks	clear	clear	clear	clear
Purge Meter Measurements								
pH (SU)	7.7	7.3	7.6	8.1	7.3	7.8	7.2	6.9
Specific Conductivity (mS/cm)	1.49	1.38	1.48	1.27	0.554	0.564	0.620	0.648
Temperature (°C)	12.5	19.0	10.4	8.8	20.1	18.1	11.1	5.8
Turbidity (NTU)	0.0	1.7	1.2	1.5	3.2	0.0	2.9	0.7
Dissolved Oxygen (mg/L)	0.0	0.37	0.0	1.55	1.51	0.47	1.61	4.55
ORP (mV)	-192	-297	-294	-255	43	-28	51	193
Field Test Kits								
Dissolved Oxygen (mg/L)	NM	NM	NM	NM	2.7	1.5	1	1.5
Alkalinity (ppm)	NM	NM	NM	NM	180	500	190	250
Carbon Dioxide (ppm)	NM	NM	NM	NM	26	25	11	13
Ferrous Iron (ppm)	NM	NM	NM	NM	0	0.1	0	0
Sulfide (ppm)	NM	NM	NM	NM	0	0	0	0
Sulfate (ppm)	NM	NM	NM	NM	31	37	41	68

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

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QUARTERLY MONITORING REPORT FOR MARCH 2014 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 3 OF 4**

LOCATION	DAMW03			
SAMPLE DATE	6/6/11	9/14/11	12/16/11	3/6/12
Appearance	clear	clear	clear	clear
Purge Meter Measurements				
pH (SU)	7.2	6.7	6.5	7.2
Specific Conductivity (mS/cm)	0.925	0.99	1.06	0.992
Temperature (°C)	12.5	21.8	10.6	8.8
Turbidity (NTU)	0.7	1.3	4.5	0.5
Dissolved Oxygen (mg/L)	0.0	0.0	0.0	0.0
ORP (mV)	-107	-92	-74	-123
Field Test Kits				
Dissolved Oxygen (mg/L)	NM	NM	NM	NM
Alkalinity (ppm)	NM	NM	NM	NM
Carbon Dioxide (ppm)	NM	NM	NM	NM
Ferrous Iron (ppm)	NM	NM	NM	NM
Sulfide (ppm)	NM	NM	NM	NM
Sulfate (ppm)	NM	NM	NM	NM

mg/L - milligrams per liter.
mS/cm - millisiemens per centimeter.
mV - millivolts.
NM - Not measured.
NTU - nephelometric turbidity units.
ORP - Oxidation-reduction potential.
ppm - parts per million.
SU - standard units.

TABLE 3

**SUMMARY OF FIELD WATER QUALITY PARAMETERS IN GROUNDWATER
QUARTERLY MONITORING REPORT FOR MARCH 2014 EVENT
USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 4 OF 4**

LOCATION	DAMW04							
SAMPLE DATE	6/6/11	9/14/11	12/16/11	3/6/12	6/25/13	9/17/13	12/4/13	3/18/14
Appearance	clear	clear	clear	clear	clear	clear	clear	clear
Purge Meter Measurements								
pH (SU)	7.3	6.7	6.7	7.1	6.9	7.3	7.0	6.7
Specific Conductivity (mS/cm)	0.694	0.863	0.71	0.664	0.772	0.794	0.652	0.545
Temperature (°C)	16.1	22.8	11.0	8.4	16.7	20.8	13.9	6.4
Turbidity (NTU)	1.7	0.0	3.6	0	0	0	0.15	7.6
Dissolved Oxygen (mg/L)	0.0	0.0	0.0	0.0	5.48	0.47	1.17	5.6
ORP (mV)	-53	-21	-24	-15	64	-46	-45	158
Field Test Kits								
Dissolved Oxygen (mg/L)	NM	NM	NM	NM	1	0.7	0.5	2
Alkalinity (ppm)	NM	NM	NM	NM	400	360	300	190
Carbon Dioxide (ppm)	NM	NM	NM	NM	60	75	31	13
Ferrous Iron (ppm)	NM	NM	NM	NM	0.4	1.4	1.2	0
Sulfide (ppm)	NM	NM	NM	NM	0	0	0	0
Sulfate (ppm)	NM	NM	NM	NM	>80	26	15	24

mg/L - milligrams per liter.

mS/cm - millisiemens per centimeter.

mV - millivolts.

NM - Not measured.

NTU - nephelometric turbidity units.

ORP - Oxidation-reduction potential.

ppm - parts per million.

SU - standard units.

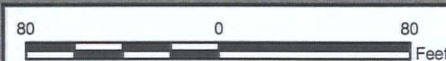
FIGURE

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).



Legend

- Monitoring Well
- Abandoned Monitoring Well
- Property Boundary



DRAWN BY	DATE
J. ENGLISH	07/29/11
CHECKED BY	DATE
J. LOGAN	08/07/13
REVISED BY	DATE
S. PAXTON	08/07/13



MONITORING WELLS USCG ATWATER DETROIT, MICHIGAN

CONTRACT NUMBER	CTO NUMBER
02435	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
1	0

SCALE
AS NOTED

ATTACHMENT A
SAMPLING FIELD FORMS

GROUNDWATER SAMPLE LOG SHEET



Tetra Tech Inc.

Event: Quarterly GW Monitoring
 Project Site Name: Detroit - Atwater
 Project No.: 112G02435

Sample ID: DA-MW01R-0314	Sampled By: T. ROJAHN
QA/QC Duplicate ID: DA-FD-031414	Sample Date: 03/18/14
MS/MSD Collected: YES (NO)	Sample Time: 1300

WELL INFORMATION:	
Well ID: MW01R	Purge Date: 03/18/14
Well Diameter (in): 2"	Static Water Level (ft-BTOR): 1.50
Top of Screen (ft-BTOR): 3'	PID Monitor Reading: -
Bottom of Screen (ft-BTOR): 13	Purge Method: Peristaltic Pump
Total Well Depth (ft-BTOR): 13'	Sample Method: Peristaltic Pump

EQUIPMENT INFORMATION:	
Water Quality Instrument: HORIBA U-5000/2114	Pump Controller: PERISTALTIC - GEOPUMP
Turbidity Meter:	

PURGE DATA:											
Time (Hrs)	H ₂ O Level (ft-BTOR)	Flow mL/min.	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% ppt)	Other Vol (ml)
1205	1.50	0	-	-	-	-	-	-	-	-	-
1215	1.95	150	CLEAR	7.11	0.814	8.92	418	8.77	-189	0.4	1500
1225	2.01	150	CLEAR	7.08	0.814	8.07	24.5	8.33	-191	0.4	3000
1235	2.03	150	CLEAR	7.06	0.803	6.41	16.8	8.19	-199	0.4	4500
1245	2.03	150	CLEAR	7.06	0.806	5.93	15.4	8.11	-204	0.4	6000
1250	2.03	150	CLEAR	7.03	0.800	5.62	10.6	8.12	-207	0.4	6750
1255	2.03	150	CLEAR	7.03	0.799	5.41	9.7	8.21	-206	0.4	7500
1300	-	-	-	-	-	-	-	-	-	-	-

FINAL PURGE / SAMPLE DATA:											
Start Purge	End Purge	Total (min.)	Total Vol (gal / L)	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% ppt)	Other
1205	1300	50	7.5	7.03	0.799	5.41	9.7	8.21	-206	0.4	-

ANALYSIS, PRESERVATION AND BOTTLE REQUIREMENTS:						
Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
PAHs	See lab Spec	4° C	2	1 L	Amber Glass	✓
Total Metals	See lab Spec	HN03	1	250 ml	Plastic	✓
Dissolved Metals	See lab Spec	HN03	1	250 ml	Plastic	✓

OBSERVATIONS / NOTES:		
2114-Horiba ID II		
Coordinates:	N	E
		Signature(s): <i>T. Rojahn</i>



FIELD ANALYTICAL LOG SHEET GEOCHEMICAL PARAMETERS

Tetra Tech NUS, Inc.

Page 1 of 2

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MWOIR-0314
Project No.:	112G02435	Sample Location:	Detroit - Atwater
Sampled By:	T. ROSAHL	Duplicate:	<input type="checkbox"/>
Field Analyst:	SAME	Blank:	<input type="checkbox"/>
Field Form Checked as per QA/QC Checklist (initials):		TR	

SAMPLING DATA:									
Date:	3-18-14	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP (Eh)
Time:	1300	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	PPT (mg/l)	(+/- mv)
Method:	PERISTALTIC	CLEAR	7.03	0.799	8.21	9.7	5.41	0.4	-206

SAMPLE COLLECTION/ANALYSIS INFORMATION:	
ORP (Eh) (+/- mv)	Electrode Make & Model: HORIBA U-52 SERIES 4-5000
	Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen / <u>PLATINUM</u>

Dissolved Oxygen:			
Equipment: Chemetrics Test Kit			
Concentration: <u>1</u> ppm			
Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	0 to 1 ppm	K-7501	<u>1</u>
<input checked="" type="checkbox"/>	1 to 12 ppm	K-7512	<u>1</u>
Analysis Time: <u>1353</u>			

Notes:			
Alkalinity:			
Equipment: Chemetrics Test Kit			
Concentration: <u>400</u> ppm			
Range Used:	Range	Method	Concentration ppm
<input type="checkbox"/>	10 to 100 ppm	K-9810	
<input type="checkbox"/>	50 to 500 ppm	K-9815	
<input checked="" type="checkbox"/>	100 to 1000 ppm	K-9820	<u>400</u>
Analysis Time: <u>1400</u>			
Filtered: <input type="checkbox"/>			

Notes:			
Carbon Dioxide:			
Equipment: Chemetrics Test Kit			
Concentration: <u>35</u> ppm			
Range Used:	Range	Method	Concentration ppm
<input checked="" type="checkbox"/>	10 to 100 ppm	K-1910	<u>35</u>
<input type="checkbox"/>	100 to 1000 ppm	K-1920	
<input type="checkbox"/>	250 to 2500 ppm	K-1925	
Analysis Time: <u>1407</u>			

Notes:			
Ferrous Iron (Fe ²⁺):			
Equipment: HACH IR-18C Color Wheel Range: 0 - 10 mg/L			
Concentration: <u>1.0</u> ppm			
Analysis Time: <u>1311</u>			
Filtered: <input type="checkbox"/>			

Sulfide (S ²⁻):			
Equipment: Chemetrics Test Kit			
Concentration: <u>0.7</u> ppm			
Range Used:	Range	Method	Concentration ppm
<input type="checkbox"/>	0 to 1 ppm	K-9510	
<input type="checkbox"/>	1 to 10 ppm	K-9510	
Analysis Time: <u>1325</u>			

Notes:			
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Tetra Tech Inc.

**FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS**

Page 2 of 2

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MWOIR-0314
Project No.:	112G02435	Sample Location:	Detroit - Atwater
Sampled By:	T. Rojahn	Duplicate:	—
Field Analyst:	SAME	Blank:	—
Field Form Checked as per QA/QC Checklist (initials): TK			
Sulfate (SO_4^{2-}):			
Equipment:	HACH DR/890	Range:	2-70 mg/L
Program/Module:	92	Concentration:	72 ppm
		Analysis Time:	1305
Notes:		Filtered:	
QA/QC Checklist:			
All data fields have been completed as necessary:			
Correct measurement units are cited in the SAMPLING DATA block:			
Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet:			
Final calculated concentration is within the appropriate <i>Range Used</i> block:			
Title block on each page of form is initialized by person who performed this QA/QC Checklist:			

GROUNDWATER SAMPLE LOG SHEET



Tetra Tech Inc.

Event: Quarterly GW Monitoring
 Project Site Name: Detroit - Atwater
 Project No.: 112G02435

Sample ID: DA-MW02R-0314	Sampled By: MARK MENDEL
QA/QC Duplicate ID: —	Sample Date: 03/18/14
MS/MSD Collected: YES (NO)	Sample Time: 1250

WELL INFORMATION:	
Well ID: MW01R	Purge Date: 03/18/14
Well Diameter (in): 2"	Static Water Level (ft-BTOR): 1.30
Top of Screen (ft-BTOR): 3'	PID Monitor Reading: NA
Bottom of Screen (ft-BTOR): 13	Purge Method: Peristaltic Pump
Total Well Depth (ft-BTOR): 13'	Sample Method: Peristaltic Pump

EQUIPMENT INFORMATION:	
Water Quality Instrument: HANNA - 21401	Pump Controller: 024824
Turbidity Meter:	

PURGE DATA											
Time (Hrs)	H ₂ O Level (ft-BTOR)	Flow mL/min.	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1200	2.65	160	clear	7.13	0.655	4.17	2.6	7.17	210	0.2	
1210	1.97	160	clear	7.11	0.636	4.23	2.4	7.20	210	0.2	
1220	1.93	160	clear	6.99	0.651	3.76	1.1	6.39	212	0.3	
1230	1.97	160	clear	6.94	0.647	4.52	0.8	6.12	249	0.3	
1240	2.61	160	clear	6.94	0.648	4.53	0.9	6.02	199	0.3	
1250	2.61	160	clear	6.94	0.648	4.55	0.7	5.76	193	0.3	

FINAL PURGE / SAMPLE DATA											
Start Purge	End Purge	Total (min.)	Total Vol. (gal. (L))	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1200	1250	50	8	6.94	0.648	4.55	0.7	5.76	193	0.3	—

ANALYSIS, PRESERVATION AND BOTTLE REQUIREMENTS						
Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
PAHs	See lab Spec	4° C	2	1 L	Amber Glass	✓
Total Metals	See lab Spec	HN03	1	250 ml	Plastic	✓
Dissolved Metals	See lab Spec	HN03	1	250 ml	Plastic	✓

OBSERVATIONS / NOTES:		

Coordinates:	N	E	Signature(s): Mark A. Menzel
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Tetra Tech Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Page 1 of 2

Project Site Name: USCG Detroit				Sample ID No.: DA-MW02R-0314				
Project No.: 112G02435				Sample Location: Detroit Atwater				
Sampled By: M. MENGEL				Duplicate: —				
Field Analyst: T. ROJAHN				Blank: —				
Field Form Checked as per QA/QC Checklist (initials):								
SAMPLING DATA:								
Date: 3-18-14	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP (Eh)
Time: 1250	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	PP ⁺ (%)	(+/- mv)
Method: Peristaltic	CLEAR	6.94	0648	5.76	0.7	4.55	0.3	193
SAMPLE COLLECTION/ANALYSIS INFORMATION:								
ORP (Eh) (+/- mv)		Electrode Make & Model: HORIBA / 7313						
		Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen / Platinum						
Dissolved Oxygen:								
Equipment: Chemetrics Test Kit				Concentration: 1.5 ppm				
Range Used:	Range	Method	Concentration ppm	Analysis Time: 1440				
	0 to 1 ppm	K-7501						
✓	1 to 12 ppm	K-7512	1.5					
Notes:								
Alkalinity:								
Equipment: Chemetrics Test Kit				Concentration: 250 ppm				
Range Used:	Range	Method	Concentration ppm	Analysis Time: 1450				
	10 to 100 ppm	K-9810						
✓	50 to 500 ppm	K-9815	250					
	100 to 1000 ppm	K-9820						
Notes: Filtered:								
Carbon Dioxide:								
Equipment: Chemetrics Test Kit				Concentration: 13 ppm				
Range Used:	Range	Method	Concentration ppm	Analysis Time: 1455				
✓	10 to 100 ppm	K-1910	13					
	100 to 1000 ppm	K-1920						
	250 to 2500 ppm	K-1925						
Notes:								
Ferrous Iron (Fe²⁺):								
Equipment: HACH IR-18C Color Wheel		Range: 0 - 10 mg/L		Concentration: 0 ppm				
				Analysis Time: 1432				
Notes: Filtered:								
Sulfide (S²⁻):								
Equipment: Chemetrics Test Kit				Concentration: 0 ppm				
Range Used:	Range	Method	Concentration ppm	Analysis Time: 1443				
✓	0 to 1 ppm	K-9510	0					
	1 to 10 ppm	K-9510						
Notes:								



Tetra Tech Inc.

FIELD ANALYTICAL LOG SHEET GEOCHEMICAL PARAMETERS

Page 2 of 2

Project Site Name:	USCG Detroit	Sample ID No.:	DA-MWOZR-0314
Project No.:	112G02435	Sample Location:	DETROIT Atwater
Sampled By:	M. MEGEL	Duplicate:	—
Field Analyst:	T. ROJAHN	Blank:	—
Field Form Checked as per QA/QC Checklist (initials):			
Sulfate (SO_4^{2-}):			
Equipment:	HACH DR/890	Range:	2-70 mg/L
Program/Module:	92	Concentration:	68 ppm
		Analysis Time:	1435
Notes:		Filtered:	
QA/QC Checklist:			
All data fields have been completed as necessary:			
Correct measurement units are cited in the SAMPLING DATA block:			
Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet:			
Final calculated concentration is within the appropriate <i>Range Used</i> block:			
Title block on each page of form is initialized by person who performed this QA/QC Checklist:			

GROUNDWATER SAMPLE LOG SHEET



Tetra Tech Inc.

Event: Quarterly GW Monitoring
 Project Site Name: Detroit - Atwater
 Project No.: 112G02435

Sample ID: <u>DA-MW04-0314</u>	Sampled By: <u>MARK MENDEL</u>
QA/QC Duplicate ID: <u>—</u>	Sample Date: <u>03/18/14</u>
MS/MSD Collected: <u>YES</u> NO	Sample Time: <u>1415</u>

WELL INFORMATION

Well ID: <u>MW04</u>	Purge Date: <u>03/18/14</u>
Well Diameter (in): <u>2"</u>	Static Water Level (ft-BTOR): <u>3.02</u>
Top of Screen (ft-BTOR): <u>3'</u>	PID Monitor Reading: <u>NA</u>
Bottom of Screen (ft-BTOR): <u>13</u>	Purge Method: <u>Peristaltic Pump</u>
Total Well Depth (ft-BTOR): <u>13'</u>	Sample Method: <u>Peristaltic Pump</u>

EQUIPMENT INFORMATION

Water Quality Instrument: <u>HG310A 21401</u>	Pump Controller: <u>024824</u>
Turbidity Meter:	

PURGE DATA

Time (Hrs)	H ₂ O Level (ft-BTOR)	Flow mL/min.	Color	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1320	3.27	200	CLOUDY	6.73	0.545	6.00	229	8.17	69	0.1	
1330	3.34	200	CLEAR	6.79	0.544	5.52	61	7.33	123	0.2	
1340	3.48	200	CLEAR	6.76	0.551	5.60	13.7	6.57	138	0.2	
1350	3.47	200	CLEAR	6.73	0.547	5.62	5.1	6.33	150	0.2	
1400	3.57	200	CLEAR	6.73	0.547	5.70	7.2	6.24	155	0.2	
1410	3.62	200	CLEAR	6.71	0.545	5.60	7.6	6.39	158	0.2	

FINAL PURGE / SAMPLE DATA

Start Purge	End Purge	Total (min.)	Total Vol. (gal.)	pH (S.U.)	S.C. (mS/cm)	DO (mg/L)	Turbidity (NTU)	Temp. (C°)	ORP (mV)	Salinity (% or ppt)	Other
1320	1410	50	10	6.71	0.545	5.60	7.6	6.39	158	0.2	—

ANALYSIS, PRESERVATION AND BOTTLE REQUIREMENTS

Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
PAHs	See lab Spec	4° C	4	1 L	Amber Glass	✓
Total Metals	See lab Spec	HN03	1	250 ml	Plastic	✓
Dissolved Metals	See lab Spec	HN03	1	250 ml	Plastic	✓

OBSERVATIONS / NOTES:

Coordinates:	N	E
		Signature(s): <u>Mark A. Mendel</u>



Tetra Tech Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Page 1 of 2

Project Site Name: <u>USCG Detroit</u>				Sample ID No.: <u>DA-MW04-0314</u>				
Project No.: <u>112G02435</u>				Sample Location: <u>Detroit - Atwater</u>				
Sampled By: <u>M. MENGEL</u>				Duplicate: <u>—</u>				
Field Analyst: <u>T. ROJAHN</u>				Blank: <u>—</u>				
Field Form Checked as per QA/QC Checklist (initials):								
SAMPLING DATA:								
Date: <u>3-18-14</u>	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP (Eh)
Time: <u>1415</u>	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	PPT (‰)	(+/- mv)
Method: <u>PERISTALTIC</u>	<u>CLEAR</u>	<u>6.71</u>	<u>0.545</u>	<u>6.39</u>	<u>7.6</u>	<u>5.60</u>	<u>0.2</u>	<u>158</u>
SAMPLE COLLECTION/ANALYSIS INFORMATION:								
ORP (Eh) (+/- mv)				Electrode Make & Model: <u>HORIBA / 7313</u>				
				Reference Electrode (circle one): Silver-Silver Chloride / Calomel / Hydrogen <u>Platinum</u>				
Dissolved Oxygen:								
Equipment: Chemetrics Test Kit				Concentration: <u>2</u> ppm				
Range Used:	Range	Method	Concentration ppm	Analysis Time: <u>1645</u>				
<u>✓</u>	0 to 1 ppm	K-7501	<u>1</u>					
<u>✓</u>	1 to 12 ppm	K-7512	<u>2</u>					
Notes:								
Alkalinity:								
Equipment: Chemetrics Test Kit				Concentration: <u>190</u> ppm				
Range Used:	Range	Method	Concentration ppm	Analysis Time: <u>1704</u>				
	10 to 100 ppm	K-9810						
<u>✓</u>	50 to 500 ppm	K-9815	<u>190</u>					
<u>✓</u>	100 to 1000 ppm	K-9820	<u>190</u>					
Notes: Filtered:								
Carbon Dioxide:								
Equipment: Chemetrics Test Kit				Concentration: <u>13</u> ppm				
Range Used:	Range	Method	Concentration ppm	Analysis Time: <u>1707</u>				
<u>✓</u>	10 to 100 ppm	K-1910	<u>13</u>					
	100 to 1000 ppm	K-1920						
	250 to 2500 ppm	K-1925						
Notes:								
Ferrous Iron (Fe²⁺):								
Equipment: <u>HACH IR-18C Color Wheel</u> Range: 0 - 10 mg/L				Concentration: <u>0</u> ppm				
				Analysis Time: <u>1655</u>				
Notes: Filtered:								
Sulfide (S²⁻):								
Equipment: Chemetrics Test Kit				Concentration: <u>0</u> ppm				
Range Used:	Range	Method	Concentration ppm	Analysis Time: <u>1650</u>				
<u>✓</u>	0 to 1 ppm	K-9510	<u>0</u>					
	1 to 10 ppm	K-9510						
Notes:								



Tetra Tech Inc.

FIELD ANALYTICAL LOG SHEET
GEOCHEMICAL PARAMETERS

Page 2 of 2

Project Site Name: USCG Detroit	Sample ID No.: DA-MW04-0314
Project No.: 112G02435	Sample Location: DETROIT Atwater
Sampled By: M. MENGEL	Duplicate: —
Field Analyst: T. ROJAHN	Blank: —
Field Form Checked as per QA/QC Checklist (initials): TR	
Sulfate (SO_4^{2-}):	
Equipment: HACH DR/890	Range: 2-70 mg/L
Concentration: 24 ppm	
Program/Module: 92	Analysis Time: 1639
Notes:	Filtered:
QA/QC Checklist:	
All data fields have been completed as necessary:	
Correct measurement units are cited in the SAMPLING DATA block:	
Values cited in the SAMPLING DATA block are consistent with the Groundwater Sample Log Sheet:	
Final calculated concentration is within the appropriate <i>Range Used</i> block:	
Title block on each page of form is initialized by person who performed this QA/QC Checklist:	

18 TUES 03/18/14 CREW - M. MENGEI
T. ROJAHN 112602435
USCG - DETROIT ATWATER

0600 HRS - LEFT HOME to pick up M. MENGEI
0630 HRS - ARRIVE @ M. MENGEI'S HOME
MOB RENTAL Eq. into SUV rental
0653 HRS - PURCHASE Ziplock bags @ Walmart
1105 HRS - PICK UP KEY @ CG BASE FOR
DETROIT - ATWATER gate
1115 HRS - ARRIVE @ SITE - UNLOCK gate
MM - RETURN the Key
TR - STAYED @ SITE to OPEN
WELLS
1135 HRS - MM RETURNED to site
PREP to sample GROUNDWATER
DID calibration check on
Horiba - VENDOR calibrated
SAME ON 3/14/14

WATER LEVELS (WL)

WELL ID	W.L.	TIME
MW01R	1.50	1205
MW02R	2.05	1200
MW04	3.27	1320
SG @ SLIP	5.42	1325

Ty/Rojah 3/18/14

WEATHER: Mostly Sunny High 30's

TUES 3-18-14 Cont

SAMPLE ID	START PURGE	END PURGE	SAMPLE TIME	COMMENTS
DA-MW01R-0314	1205	1255	1300	TR
DA-FD031814	"	"	0000	DUP FROM ABOVE WELL
DA-MW02R-0314	1200	1250	1250	(MW)
DA-MW04-0314	1320	1410	1415	(MS/MSD)

TR DID MNA FOR ABOVE SAMPLED
WELLS

~1400 HRS - WILL TAMMINGA, ARRIVED
@ SITE to observe soil sampling
WE hadn't layed out the
sampling locations yet &
WERE still sampling the wells
& RUNNING MNA - HE left
the site but said he would
RETURN to observe soil
sampling later (in about an hr)

1500 HRS - LAYED OUT sample locations
FOR soil sampling Composites

SAMPLE LOCATIONS	SAMPLE ID	SAMPLE TIME
A, B, C, D & E	DA-SB001-0006	1530
A, B, C, D & E	DA-SB001-1224	1550
F, G, H, I & J	DA-SB002-0006	1600
F, G, H, I & J	DA-SB002-1224	1630

Ty/Rojah 3/18/14

TUES 03-18-14 CONT

~1600 Hrs - W. TAMMINGA RETURNED
to observe soil sampling
& took a few photos

1730 Hrs - FINISH CLEANUP @ SITE
& LEAVE FOR HOME

1739 Hrs - PURCHASE ICE @
SHELL STA.

1726 Hrs - DINNER

1755 Hrs - BACK ON Rd. to HOME

2200 Hrs - ARRIVE @ M. MENDEL'S HOME
DEMOLB VENDORAL EQ. INTO
MM'S TRUCK

22:15 Hrs - GAS UP SUV AFTER
LEAVING MM'S RESIDENCE

22:40 Hrs - ARRIVE HOME demob SUV
RENTAL

23:04 Hrs - RETURN SUV RENTAL

23:25 Hrs - RETURN HOME

END


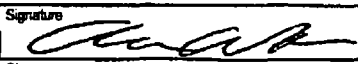
Terry Rozell

**ATTACHMENT B
DISPOSAL MANIFEST**

Trp# 23764

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number MI2 690 308 471	2. Page 1 of 1	3. Emergency Response Phone (313) 347-1300	4. Manifest Tracking Number 012055256 JJK			
5. Generator's Name and Mailing Address C/O EARTH SMART ENV. 525 E. MICHIGAN AVE. #124 SALINE, MI 48176 Generator's Phone: (313) 588-9551			Generator's Site Address (if different than mailing address) UNITED STATES COAST GUARD 2660 EAST ATWATER STREET DETROIT, MI 48207					
6. Transporter 1 Company Name EQ INDUSTRIAL SERVICES			U.S. EPA ID Number MID 000 263 871					
7. Transporter 2 Company Name			U.S. EPA ID Number					
8. Designated Facility Name and Site Address EQ DETROIT, INC. 1923 FREDERICK DETROIT, MI 48211 Facility's Phone: (313) 347-1300			U.S. EPA ID Number MID 990 991 566					
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
			No.	Type				
	Non Hazardous Liquid Waste, Not Dot Not RCRA Regulated		001	DM	00400	P	029L	
14. Special Handling Instructions and Additional Information 1. F107164DE7 / Non Haz IDW Liquids 1X55								
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offenor's Printed/Typed Name Anthony Graziano			Signature 		Month 04	Day 23	Year 14	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Part of entry/exit Date leaving U.S.:								
17. Transporter Acknowledgment of Receipt of Materials								
Transporter 1 Printed/Typed Name Aaron Work			Signature 		Month 04	Day 23	Year 14	
Transporter 2 Printed/Typed Name			Signature		Month	Day	Year	
18. Discrepancy								
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
Manifest Reference Number:								
18b. Alternate Facility (or Generator)			U.S. EPA ID Number					
Facility's Phone:								
18c. Signature of Alternate Facility (or Generator)						Month	Day	Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1.	LIW	2.		3.		4.		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a								
Printed/Typed Name			Signature		Month	Day	Year	



Certificate of Disposal

This certificate is to verify that the wastes specified on the following manifest numbers have been properly managed in accordance with all local, state and federal regulations.

Facility: EQ Detroit, Inc.
1923 Frederick
Detroit, MI 48211

Manifest: 012055256JJK
UNITED STATES COAST GUARD
MI2 690 308 471

Inbound Container	Manifest Page Line	Inbound Weight	Inbound Approval	Destination	Treatment	Mgmt Code	Outbound Manifest Page Line	Ship/ Disposal Date
993777-1-1	1 1	.00	F107164DET	Process - 702	NLiq-Solidify-Sub D	LIW		4/25/2014

I certify that the above information is true and correct to the best of my knowledge.

Authorized Signature: _____

ATTACHMENT C
LABORATORY REPORTS

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-MW01R-0314**
 Lab Sample ID: **1403255-01**
 Matrix: **Water**
 Unit: **ug/L**
 Dilution Factor: **1**
 QC Batch: **1402350**

Work Order: **1403255**
 Description: **Laboratory Services**
 Sampled: **3/18/14 13:00**
 Sampled By: **Tetra Tech**
 Received: **3/20/14 8:50**
 Prepared: **3/21/14 7:49** By: **ALK**
 Analyzed: **3/25/14 12:11** By: **JLB**
 Analytical Batch: **4C25012**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

72

40-110

2-Fluorobiphenyl

75

50-110

o-Terphenyl

78

50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW01R-0314**
Lab Sample ID: **1403255-01**
Matrix: **Water**

Work Order: **1403255**
Description: **Laboratory Services**
Sampled: **3/18/14 13:00**
Sampled By: **Tetra Tech**
Received: **3/20/14 8:50**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	2.0	1.0	0.18	ug/L	1	USEPA-6020A	03/27/14 14:36	DSC	1402371
Barium	230	5.0	0.68	ug/L	5	USEPA-6020A	03/27/14 15:45	DSC	1402371
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	03/27/14 14:36	DSC	1402371
Chromium	0.30 J	1.0	0.20	ug/L	1	USEPA-6020A	03/27/14 14:36	DSC	1402371
Copper	0.74 J	1.0	0.13	ug/L	1	USEPA-6020A	03/27/14 14:36	DSC	1402371
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	03/27/14 14:36	DSC	1402371
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	04/01/14 17:58	CKD	1402527
Selenium	0.60 J	1.0	0.31	ug/L	1	USEPA-6020A	03/27/14 14:36	DSC	1402371
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	03/27/14 14:36	DSC	1402371
Zinc	1.7 J	10	1.5	ug/L	1	USEPA-6020A	03/27/14 14:36	DSC	1402371



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW01R-0314**
Lab Sample ID: **1403255-01**
Matrix: **Water**

Work Order: **1403255**
Description: **Laboratory Services**
Sampled: **3/18/14 13:00**
Sampled By: **Tetra Tech**
Received: **3/20/14 8:50**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	2.6	1.0	0.18	ug/L	1	USEPA-6020A	03/27/14 13:51	DSC	1402370
Barium	230	5.0	0.68	ug/L	5	USEPA-6020A	03/27/14 15:26	DSC	1402370
Cadmium	0.043 J	0.20	0.038	ug/L	1	USEPA-6020A	03/27/14 13:51	DSC	1402370
Chromium	0.33 J	1.0	0.20	ug/L	1	USEPA-6020A	03/27/14 13:51	DSC	1402370
Copper	1.1	1.0	0.13	ug/L	1	USEPA-6020A	03/27/14 13:51	DSC	1402370
Lead	0.23 J	1.0	0.15	ug/L	1	USEPA-6020A	03/27/14 13:51	DSC	1402370
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	04/01/14 16:53	CKD	1402524
Selenium	0.92 J	1.0	0.31	ug/L	1	USEPA-6020A	03/27/14 13:51	DSC	1402370
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	03/27/14 13:51	DSC	1402370
Zinc	4.4 J	10	1.5	ug/L	1	USEPA-6020A	03/27/14 13:51	DSC	1402370

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-MW02R-0314**
 Lab Sample ID: **1403255-02**
 Matrix: **Water**
 Unit: **ug/L**
 Dilution Factor: **1**
 QC Batch: **1402350**

Work Order: **1403255**
 Description: **Laboratory Services**
 Sampled: **3/18/14 12:50**
 Sampled By: **Tetra Tech**
 Received: **3/20/14 8:50**
 Prepared: **3/21/14 7:49** By: **ALK**
 Analyzed: **3/25/14 12:44** By: **JLB**
 Analytical Batch: **4C25012**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

72

40-110

2-Fluorobiphenyl

72

50-110

o-Terphenyl

75

50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW02R-0314**
Lab Sample ID: **1403255-02**
Matrix: **Water**

Work Order: **1403255**
Description: **Laboratory Services**
Sampled: **3/18/14 12:50**
Sampled By: **Tetra Tech**
Received: **3/20/14 8:50**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	0.44 J	1.0	0.18	ug/L	1	USEPA-6020A	03/27/14 14:40	DSC	1402371
Barium	42	1.0	0.14	ug/L	1	USEPA-6020A	03/27/14 14:40	DSC	1402371
Cadmium	0.073 J	0.20	0.038	ug/L	1	USEPA-6020A	03/27/14 14:40	DSC	1402371
Chromium	0.97 J	1.0	0.20	ug/L	1	USEPA-6020A	03/27/14 14:40	DSC	1402371
Copper	1.2	1.0	0.13	ug/L	1	USEPA-6020A	03/27/14 14:40	DSC	1402371
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	03/27/14 14:40	DSC	1402371
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	04/01/14 18:03	CKD	1402527
Selenium	1.0 U	1.0	0.31	ug/L	1	USEPA-6020A	03/27/14 14:40	DSC	1402371
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	03/27/14 14:40	DSC	1402371
Zinc	6.4 J	10	1.5	ug/L	1	USEPA-6020A	03/27/14 14:40	DSC	1402371



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW02R-0314**
Lab Sample ID: **1403255-02**
Matrix: **Water**

Work Order: **1403255**
Description: **Laboratory Services**
Sampled: **3/18/14 12:50**
Sampled By: **Tetra Tech**
Received: **3/20/14 8:50**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	0.49 J	1.0	0.18	ug/L	1	USEPA-6020A	03/27/14 13:55	DSC	1402370
Barium	42	1.0	0.14	ug/L	1	USEPA-6020A	03/27/14 13:55	DSC	1402370
Cadmium	0.10 J	0.20	0.038	ug/L	1	USEPA-6020A	03/27/14 13:55	DSC	1402370
Chromium	0.94 J	1.0	0.20	ug/L	1	USEPA-6020A	03/27/14 13:55	DSC	1402370
Copper	1.1	1.0	0.13	ug/L	1	USEPA-6020A	03/27/14 13:55	DSC	1402370
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	03/27/14 13:55	DSC	1402370
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	04/01/14 16:59	CKD	1402524
Selenium	0.86 J	1.0	0.31	ug/L	1	USEPA-6020A	03/27/14 13:55	DSC	1402370
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	03/27/14 13:55	DSC	1402370
Zinc	2.0 J	10	1.5	ug/L	1	USEPA-6020A	03/27/14 13:55	DSC	1402370

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-MW04-0314**
 Lab Sample ID: **1403255-03**
 Matrix: **Water**
 Unit: **ug/L**
 Dilution Factor: **1**
 QC Batch: **1402350**

Work Order: **1403255**
 Description: **Laboratory Services**
 Sampled: **3/18/14 14:15**
 Sampled By: **Tetra Tech**
 Received: **3/20/14 8:50**
 Prepared: **3/21/14 7:49** By: **ALK**
 Analyzed: **3/25/14 13:17** By: **JLB**
 Analytical Batch: **4C25012**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5
70
40-110
2-Fluorobiphenyl
73
50-110
o-Terphenyl
78
50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-MW04-0314**
Lab Sample ID: **1403255-03**
Matrix: **Water**

Work Order: **1403255**
Description: **Laboratory Services**
Sampled: **3/18/14 14:15**
Sampled By: **Tetra Tech**
Received: **3/20/14 8:50**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	0.56 J	1.0	0.18	ug/L	1	USEPA-6020A	03/27/14 14:44	DSC	1402371
Barium	99	5.0	0.68	ug/L	5	USEPA-6020A	03/27/14 15:48	DSC	1402371
Cadmium	0.27	0.20	0.038	ug/L	1	USEPA-6020A	03/27/14 14:44	DSC	1402371
Chromium	0.43 J	1.0	0.20	ug/L	1	USEPA-6020A	03/27/14 14:44	DSC	1402371
Copper	3.4	1.0	0.13	ug/L	1	USEPA-6020A	03/27/14 14:44	DSC	1402371
Lead	1.4	1.0	0.15	ug/L	1	USEPA-6020A	03/27/14 14:44	DSC	1402371
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	04/01/14 18:09	CKD	1402527
Selenium	10	1.0	0.31	ug/L	1	USEPA-6020A	03/27/14 14:44	DSC	1402371
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	03/27/14 14:44	DSC	1402371
*Zinc	99	50	7.5	ug/L	5	USEPA-6020A	03/27/14 15:48	DSC	1402371

*See Statement of Data Qualifications

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-MW04-0314**
 Lab Sample ID: **1403255-03**
 Matrix: **Water**

Work Order: **1403255**
 Description: **Laboratory Services**
 Sampled: **3/18/14 14:15**
 Sampled By: **Tetra Tech**
 Received: **3/20/14 8:50**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	0.76 J	1.0	0.18	ug/L	1	USEPA-6020A	03/27/14 13:59	DSC	1402370
Barium	99	5.0	0.68	ug/L	5	USEPA-6020A	03/27/14 15:28	DSC	1402370
Cadmium	0.29	0.20	0.038	ug/L	1	USEPA-6020A	03/27/14 13:59	DSC	1402370
Chromium	0.42 J	1.0	0.20	ug/L	1	USEPA-6020A	03/27/14 13:59	DSC	1402370
Copper	3.8	1.0	0.13	ug/L	1	USEPA-6020A	03/27/14 13:59	DSC	1402370
Lead	3.5	1.0	0.15	ug/L	1	USEPA-6020A	03/27/14 13:59	DSC	1402370
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	04/01/14 17:04	OKD	1402524
Selenium	9.4	1.0	0.31	ug/L	1	USEPA-6020A	03/27/14 13:59	DSC	1402370
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	03/27/14 13:59	DSC	1402370
Zinc	99	50	7.5	ug/L	5	USEPA-6020A	03/27/14 15:28	DSC	1402370

ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
 Project: **USCG Atwater Facility**
 Client Sample ID: **DA-FD031814**
 Lab Sample ID: **1403255-04**
 Matrix: **Water**
 Unit: **ug/L**
 Dilution Factor: **1**
 QC Batch: **1402350**

Work Order: **1403255**
 Description: **Laboratory Services**
 Sampled: **3/18/14 0:00**
 Sampled By: **Tetra Tech**
 Received: **3/20/14 8:50**
 Prepared: **3/21/14 7:49** By: **ALK**
 Analyzed: **3/25/14 13:50** By: **JLB**
 Analytical Batch: **4C25012**

Semivolatile Organic Compounds by EPA Method 8270C

CAS Number	Analyte	Analytical Result	RL	MDL
83-32-9	Acenaphthene	0.50U	0.50	0.033
208-96-8	Acenaphthylene	0.50U	0.50	0.017
120-12-7	Anthracene	0.50U	0.50	0.062
56-55-3	Benzo(a)anthracene	0.50U	0.50	0.045
50-32-8	Benzo(a)pyrene	0.50U	0.50	0.040
205-99-2	Benzo(b)fluoranthene	0.50U	0.50	0.058
207-08-9	Benzo(k)fluoranthene	0.50U	0.50	0.060
191-24-2	Benzo(g,h,i)perylene	0.50U	0.50	0.061
218-01-9	Chrysene	0.50U	0.50	0.045
53-70-3	Dibenz(a,h)anthracene	0.50U	0.50	0.11
206-44-0	Fluoranthene	0.50U	0.50	0.063
86-73-7	Fluorene	0.50U	0.50	0.041
193-39-5	Indeno(1,2,3-cd)pyrene	0.50U	0.50	0.080
91-57-6	2-Methylnaphthalene	0.50U	0.50	0.015
91-20-3	Naphthalene	0.50U	0.50	0.031
85-01-8	Phenanthrene	0.50U	0.50	0.043
129-00-0	Pyrene	0.50U	0.50	0.066

Surrogates:
% Recovery
Control Limits
Nitrobenzene-d5

71

40-110

2-Fluorobiphenyl

77

50-110

o-Terphenyl

77

50-135



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-FD031814**
Lab Sample ID: **1403255-04**
Matrix: **Water**

Work Order: **1403255**
Description: **Laboratory Services**
Sampled: **3/18/14 0:00**
Sampled By: **Tetra Tech**
Received: **3/20/14 8:50**

Dissolved Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	2.3	1.0	0.18	ug/L	1	USEPA-6020A	03/27/14 15:10	DSC	1402371
Barium	250	5.0	0.68	ug/L	5	USEPA-6020A	03/27/14 16:08	DSC	1402371
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	03/27/14 15:10	DSC	1402371
Chromium	1.0 U	1.0	0.20	ug/L	1	USEPA-6020A	03/27/14 15:10	DSC	1402371
Copper	0.66 J	1.0	0.13	ug/L	1	USEPA-6020A	03/27/14 15:10	DSC	1402371
Lead	1.0 U	1.0	0.15	ug/L	1	USEPA-6020A	03/27/14 15:10	DSC	1402371
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	04/01/14 18:49	CKD	1402527
Selenium	1.2	1.0	0.31	ug/L	1	USEPA-6020A	03/27/14 15:10	DSC	1402371
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	03/27/14 15:10	DSC	1402371
Zinc	2.5 J	10	1.5	ug/L	1	USEPA-6020A	03/27/14 15:10	DSC	1402371



ANALYTICAL REPORT

Client: **TETRA TECH NUS - Pittsburgh**
Project: **USCG Atwater Facility**
Client Sample ID: **DA-FD031814**
Lab Sample ID: **1403255-04**
Matrix: **Water**

Work Order: **1403255**
Description: **Laboratory Services**
Sampled: **3/18/14 0:00**
Sampled By: **Tetra Tech**
Received: **3/20/14 8:50**

Total Metals by EPA 6000/7000 Series Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Time Analyzed	By	QC Batch
Arsenic	2.7	1.0	0.18	ug/L	1	USEPA-6020A	03/27/14 14:25	DSC	1402370
Barium	230	5.0	0.68	ug/L	5	USEPA-6020A	03/27/14 15:42	DSC	1402370
Cadmium	0.20 U	0.20	0.038	ug/L	1	USEPA-6020A	03/27/14 14:25	DSC	1402370
Chromium	0.30 J	1.0	0.20	ug/L	1	USEPA-6020A	03/27/14 14:25	DSC	1402370
Copper	1.0	1.0	0.13	ug/L	1	USEPA-6020A	03/27/14 14:25	DSC	1402370
Lead	0.23 J	1.0	0.15	ug/L	1	USEPA-6020A	03/27/14 14:25	DSC	1402370
Mercury	0.20 U	0.20	0.055	ug/L	1	USEPA-7470A	04/01/14 17:40	CKD	1402524
Selenium	1.4	1.0	0.31	ug/L	1	USEPA-6020A	03/27/14 14:25	DSC	1402370
Silver	0.20 U	0.20	0.037	ug/L	1	USEPA-6020A	03/27/14 14:25	DSC	1402370
Zinc	3.4 J	10	1.5	ug/L	1	USEPA-6020A	03/27/14 14:25	DSC	1402370

ATTACHMENT D
DATA VALIDATION REPORT
(on pdf)

H



Appendix H

Fill Sample Report (City of Detroit)



PITT-05-14-004

May 2, 2014

Mr. Will Tamminga
Director - Project Management
Detroit Economic Growth Corporation
500 Griswold Street, Suite 2200
Detroit, Michigan 48226

Subject: Backfill Sampling Results from USCG Atwater Site

Dear Mr. Tamminga:

On March 18, 2014, Tetra Tech, Inc. (Tetra Tech) collected backfill samples on behalf of the City of Detroit from the United States Coast Guard (USCG) property on Atwater Street in the City of Detroit. The samples were collected according to the City of Detroit's Purchase Order and Scope of Services dated March 17, 2014.

Four (4) composite soil samples were collected with a hand auger and/or hand trowels. Two (2) composite samples (DA-SB001-0006 and DA-SB002-0006) were collected from the top soil (approximately 0 to 6 inches below ground surface), and two (2) other composite samples (DA-SB001-1224 and DA-SB002-1224) were collected from the fill (approximately 1 to 2 feet below ground surface). Each composite sample was composited from five (5) subsamples. The approximate sample locations are shown on the attached sketch from the Scope of Services. Copies of the field sampling forms are attached. The samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Michigan-10 metals, and polychlorinated biphenyls (PCBs) by Trimatrix Laboratories of Grand Rapids, Michigan. The samples were collected and shipped to the laboratory within less than a 24-hour period.

Following receipt of the data from the laboratory, the data was validated by Tetra Tech. The data was determined to be acceptable except for the results for 3,3'-dichlorobenzidine which were rejected because of poor blank spike recovery. However, this compound is not commonly used and is rarely detected in environmental samples. A copy of the laboratory data and the validation report are included on a CD with this report.

The laboratory results were tabulated and compared to the State of Michigan Department of Environmental Quality (MDEQ) Residential Cleanup Criteria - Direct Contact Criteria (December 30, 2013 edition). This table also includes the results of the fill (DASB-CF-01, DASB-CF-02, and DASB-CF-03) and topsoil (DASB-CF-04) samples collected by the USCG when the excavation was backfilled. The results and criteria are summarized on Table 1 (attached). All results (except as noted above) were less than the MDEQ Residential Direct Contact Criteria.

A pdf of this report is also included with this letter.

Tetra Tech, Inc.

661 Andersen Drive, Pittsburgh, PA 15220-2700
Tel 412.921.7090 Fax 412.921.4040 www.tetratech.com




TETRA TECH

PITT-05-14-004

Mr. Will Tamminga
Director - Project Management
Detroit Economic Growth Corporation
May 2, 2014 – Page Two

Should you have any questions regarding the enclosed information, please contact Joseph Logan at 412-921-7231.

Very truly yours,



Joseph W. Logan, Jr.
Project Manager

JWL/stc

Enclosure

cc: File: 112C06605
James Cook, USCG (1 copy)

TABLE

TABLE 1

**ANALYTICAL RESULTS OF POST-EXCAVATION FILL SAMPLES FROM USCG ATWATER FACILITY
DETROIT, MICHIGAN**

PAGE 1 OF 4

SAMPLE ID	MDEQ	DA-SB001-0006	DA-SB001-1224	DA-SB002-0006	DA-SB002-1224	DASB-CF-01	DASB-CF-02	DASB-CF-03	DASB-CF-04
SAMPLE DATE	Residential	20140318	20140318	20140318	20140318	20130417	20130417	20130419	20130423
SOIL TYPE	Direct	TOPSOIL	FILL	TOPSOIL	FILL	FILL	FILL	FILL	TOPSOIL
TOP DEPTH, feet below surface	Contact	0	1	0	1	NA	NA	NA	NA
BOTTOM DEPTH, feet below surface	Criteria	0.5	2	0.5	2	NA	NA	NA	NA
METALS (MG/KG)									
ARSENIC	7.6	4	3.8	3.7	3.5	3.3	3.6	3.3	3.2
BARIUM	37000	23	8.7	22	9.5	NA	NA	NA	NA
CADMIUM	550	0.18 J	0.13 J	0.19 J	0.13 J	NA	NA	NA	NA
CHROMIUM	2500	7.6 J	9.1 J	7.7 J	6.4 J	NA	NA	NA	NA
COPPER	20000	5	6	5.6	5.3	NA	NA	NA	NA
LEAD	400	13 J	4 J	9.6 J	4.2 J	3.4	3.6	3.3	12
MERCURY	160	0.022 J	0.0072 J	0.036 J	0.013 J	NA	NA	NA	NA
SELENIUM	2600	0.21	0.12	0.28	0.13	NA	NA	NA	NA
SILVER	2500	0.02 J	0.05 U	0.018 J	0.05 U	NA	NA	NA	NA
ZINC	170000	29	25	28	23	NA	NA	NA	NA
PCBS (MG/KG)									
AROCLOR-1016	NC	0.015 U	0.015 U	0.015 U	0.014 U	NA	NA	NA	NA
AROCLOR-1221	NC	0.015 U	0.015 U	0.015 U	0.014 U	NA	NA	NA	NA
AROCLOR-1232	NC	0.015 U	0.015 U	0.015 U	0.014 U	NA	NA	NA	NA
AROCLOR-1242	NC	0.015 U	0.015 U	0.015 U	0.014 U	NA	NA	NA	NA
AROCLOR-1248	NC	0.015 U	0.015 U	0.015 U	0.014 U	NA	NA	NA	NA
AROCLOR-1254	NC	0.015 U	0.015 U	0.015 U	0.014 U	NA	NA	NA	NA
AROCLOR-1260	NC	0.015 U	0.015 U	0.015 U	0.014 U	NA	NA	NA	NA
AROCLOR-1260	1	0.0525 U	0.0525 U	0.0525 U	0.049 U	NA	NA	NA	NA
SEMIVOLATILES (MG/KG)									
1,1-BIPHENYL	NC	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
1,3-DINITROBENZENE	NC	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	23000	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	710	0.0096 U	0.0094 U	0.0093 U	0.0091 U	NA	NA	NA	NA
2,4-DICHLOROPHENOL	660	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	11000	0.15 U	0.15 U	0.15 U	0.15 U	NA	NA	NA	NA
2,4-DINITROPHENOL	NC	0.19 U	0.19 U	0.19 U	0.18 U	NA	NA	NA	NA
2,4-DINITROTOLUENE	48	0.0096 U	0.0094 U	0.0093 U	0.0091 U	NA	NA	NA	NA
2,6-DINITROTOLUENE	NC	0.0077 U	0.0076 U	0.0075 U	0.0073 U	NA	NA	NA	NA
2-CHLORONAPHTHALENE	56000	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
2-CHLOROPHENOL	1400	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
2-METHYLNAPHTHALENE	8100	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	0.08 U
2-METHYLPHENOL	11000	0.0096 U	0.0094 U	0.0093 U	0.0091 U	NA	NA	NA	NA
3-METHYLPHENOL	11000	0.0096 U	0.0094 U	0.0093 U	0.0091 U	NA	NA	NA	NA
4-METHYLPHENOL	11000	0.0096 U	0.0094 U	0.0093 U	0.0091 U	NA	NA	NA	NA
2-NITROANILINE	NC	0.0096 U	0.0094 U	0.0093 U	0.0091 U	NA	NA	NA	NA
2-NITROPHENOL	630	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	6.6	0.77 UR	0.76 UR	0.75 UR	0.72 UR	NA	NA	NA	NA
3-NITROANILINE	NC	0.038 U	0.038 U	0.037 U	0.036 U	NA	NA	NA	NA
4,6-DINITRO-2-METHYLPHENOL	79	0.077 U	0.076 U	0.075 U	0.072 U	NA	NA	NA	NA
4-BROMOPHENYL PHENYL ETHER	NC	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA

TABLE 1

**ANALYTICAL RESULTS OF POST-EXCAVATION FILL SAMPLES FROM USCG ATWATER FACILITY
DETROIT, MICHIGAN**

PAGE 2 OF 4

SAMPLE ID	MDEQ	DA-SB001-0006	DA-SB001-1224	DA-SB002-0006	DA-SB002-1224	DASB-CF-01	DASB-CF-02	DASB-CF-03	DASB-CF-04
SAMPLE DATE	Residential	20140318	20140318	20140318	20140318	20130417	20130417	20130419	20130423
SOIL TYPE	Direct	TOPSOIL	FILL	TOPSOIL	FILL	FILL	FILL	FILL	TOPSOIL
TOP DEPTH, feet below surface	Contact	0	1	0	1	NA	NA	NA	NA
BOTTOM DEPTH, feet below surface	Criteria	0.5	2	0.5	2	NA	NA	NA	NA
SEMIVOLATILES (MG/KG) (Continued)									
4-CHLORO-3-METHYLPHENOL	4500	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
4-CHLOROANILINE	NC	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
4-CHLOROPHENYL PHENYL ETHER	NC	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
4-NITROANILINE	NC	0.038 U	0.038 U	0.037 U	0.036 U	NA	NA	NA	NA
4-NITROPHENOL	NC	0.19 U	0.19 U	0.19 U	0.18 U	NA	NA	NA	NA
ACENAPHTHENE	41000	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	0.08 U
ACENAPHTHYLENE	1600	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	0.08 U
ACETOPHENONE	47000	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
ANTHRACENE	230000	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	0.08 U
ATRAZINE	71	0.0096 U	0.0094 U	0.0093 U	0.0091 U	NA	NA	NA	NA
BENZALDEHYDE	NC	0.0077 U	0.0076 U	0.0075 U	0.0073 U	NA	NA	NA	NA
BENZO(A)ANTHRACENE	20	0.04 J	0.0045 J	0.017 J	0.0091 U	NA	NA	NA	0.067 J
BENZO(A)PYRENE	2	0.039 J	0.0037 J	0.015 J	0.0091 U	NA	NA	NA	0.07 J
BENZO(B)FLUORANTHENE	20	0.063 J	0.0034 J	0.03 J	0.0091 U	NA	NA	NA	0.099
BENZO(G,H,I)PERYLENE	2500	0.027 J	0.003 J	0.013 J	0.0091 U	NA	NA	NA	0.028 J
BENZO(K)FLUORANTHENE	200	0.022 J	0.0022 J	0.0083 J	0.0091 U	NA	NA	NA	0.052 J
BIS(2-CHLOROETHOXY)METHANE	NC	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
BIS(2-CHLOROETHYL)ETHER	13	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
BIS(2-CHLOROISOPROPYL)ETHER	NC	0.0077 U	0.0076 U	0.0075 U	0.0073 U	NA	NA	NA	NA
BIS(2-ETHYLHEXYL)PHTHALATE	2800	0.018 J	0.019 U	0.014 J	0.018 U	NA	NA	NA	NA
BUTYL BENZYL PHTHALATE	36000	0.0072 J	0.019 U	0.0064 J	0.018 U	NA	NA	NA	NA
CAPROLACTAM	53000	0.038 U	0.038 U	0.037 U	0.036 U	NA	NA	NA	NA
CARBAZOLE	530	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
CHRYSENE	2000	0.041 J	0.019 U	0.019 J	0.018 U	NA	NA	NA	0.07 J
DIBENZO(A,H)ANTHRACENE	2	0.0084 J	0.0094 U	0.0034 J	0.0091 U	NA	NA	NA	0.08 U
DIBENZOFURAN	NC	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
DIETHYL PHTHALATE	170000	0.0077 U	0.0076 U	0.0075 U	0.0073 U	NA	NA	NA	NA
DIMETHYL PHTHALATE	1000000	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
DI-N-BUTYL PHTHALATE	27000	0.044 J	0.03 J	0.024 J	0.023 J	NA	NA	NA	NA
DI-N-OCTYL PHTHALATE	6900	0.019 UJ	0.019 U	0.019 UJ	0.018 U	NA	NA	NA	NA
FLUORANTHENE	46000	0.051	0.0075 J	0.022	0.018 U	NA	NA	NA	0.13
FLUORENE	27000	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	0.08 U
HEXACHLORO BENZENE	8.9	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
HEXACHLOROBUTADIENE	100	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
HEXACHLOROCYCLOPENTADIENE	2300	0.0096 U	0.0094 U	0.0093 U	0.0091 U	NA	NA	NA	NA
HEXACHLOROETHANE	230	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	20	0.022 J	0.0038 U	0.012 J	0.0036 U	NA	NA	NA	0.02 J
ISOPHORONE	4800	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
NAPHTHALENE	16000	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	0.08 U
NITROBENZENE	100	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
N-NITROSO-DI-N-PROPYLAMINE	1.2	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA

TABLE 1

**ANALYTICAL RESULTS OF POST-EXCAVATION FILL SAMPLES FROM USCG ATWATER FACILITY
DETROIT, MICHIGAN**

PAGE 3 OF 4

SAMPLE ID	MDEQ	DA-SB001-0006	DA-SB001-1224	DA-SB002-0006	DA-SB002-1224	DASB-CF-01	DASB-CF-02	DASB-CF-03	DASB-CF-04
SAMPLE DATE	Residential	20140318	20140318	20140318	20140318	20130417	20130417	20130419	20130423
SOIL TYPE	Direct	TOPSOIL	FILL	TOPSOIL	FILL	FILL	FILL	FILL	TOPSOIL
TOP DEPTH, feet below surface	Contact	0	1	0	1	NA	NA	NA	NA
BOTTOM DEPTH, feet below surface	Criteria	0.5	2	0.5	2	NA	NA	NA	NA
SEMIVOLATILES (MG/KG) (Continued)									
N-NITROSODIPHENYLAMINE	1700	0.0096 U	0.0094 U	0.0093 U	0.0091 U	NA	NA	NA	NA
PENTACHLOROPHENOL	90	0.038 U	0.038 U	0.037 U	0.036 U	NA	NA	NA	NA
PHENANTHRENE	1600	0.03	0.019 U	0.011 J	0.018 U	NA	NA	NA	0.06 J
PHENOL	40000	0.019 U	0.019 U	0.019 U	0.018 U	NA	NA	NA	NA
PYRENE	29000	0.076 J	0.0071 J	0.033 J	0.018 U	NA	NA	NA	0.13
VOLATILES (MG/KG)									
1,1,1-TRICHLOROETHANE	500000	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	53	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	180	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	1000000	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
1,1-DICHLOROETHANE	27000	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
1,1-DICHLOROETHENE	200	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
1,2,3-TRICHLOROBENZENE	NC	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	990	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE	4.4	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
1,2-DIBROMOETHANE	0.092	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
1,2-DICHLOROBENZENE	19000	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
1,2-DICHLOROETHANE	91	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
1,2-DICHLOROPROPANE	140	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
1,3-DICHLOROBENZENE	200	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
1,4-DICHLOROBENZENE	400	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
1,4-DIOXANE	530	1.4 U	1.3 U	1.2 U	1.4 U	NA	NA	NA	NA
2-BUTANONE	120000	0.087 J	0.076 J	0.086 J	0.1 J	NA	NA	NA	NA
2-HEXANONE	32000	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
4-METHYL-2-PENTANONE	56000	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
ACETONE	23000	0.2 U	0.25 U	0.2 U	0.24 U	NA	NA	NA	NA
BENZENE	180	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
BROMOCHLOROMETHANE	NC	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
BROMODICHLOROMETHANE	110	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
BROMOFORM	820	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
BROMOMETHANE	320	0.026 J	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
CARBON DISULFIDE	7200	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
CARBON TETRACHLORIDE	96	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
CHLOROBENZENE	4300	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
CHLORODIBROMOMETHANE	110	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
CHLOROETHANE	2600	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
CHLOROFORM	1200	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
CHLOROMETHANE	1600	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2500	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	10	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
CYCLOHEXANE	NC	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA

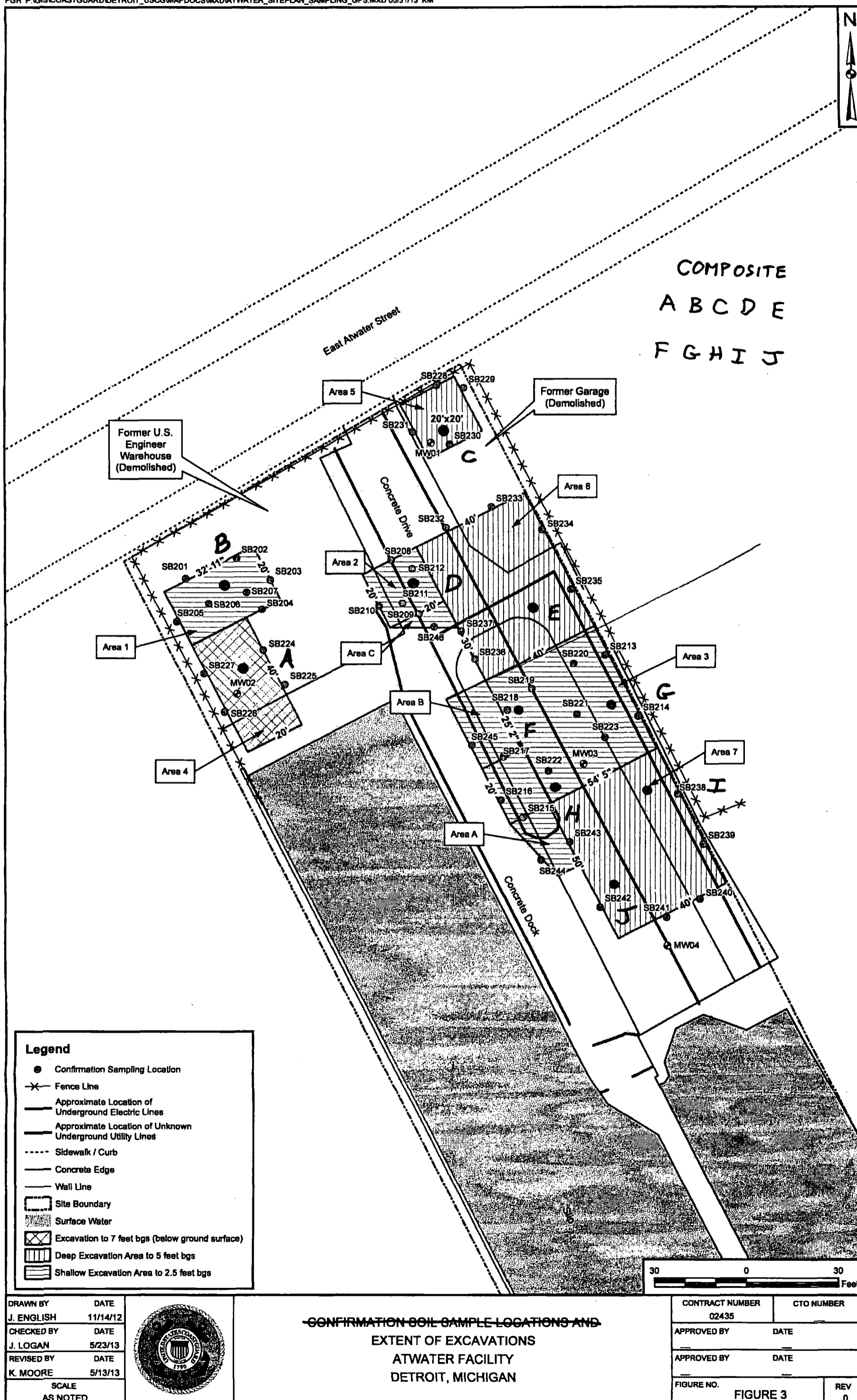
TABLE 1

ANALYTICAL RESULTS OF POST-EXCAVATION FILL SAMPLES FROM USCG ATWATER FACILITY
DETROIT, MICHIGAN
PAGE 4 OF 4

SAMPLE ID	MDEQ	DA-SB001-0006	DA-SB001-1224	DA-SB002-0006	DA-SB002-1224	DASB-CF-01	DASB-CF-02	DASB-CF-03	DASB-CF-04
SAMPLE DATE	Residential	20140318	20140318	20140318	20140318	20130417	20130417	20130419	20130423
SOIL TYPE	Direct	TOPSOIL	FILL	TOPSOIL	FILL	FILL	FILL	FILL	TOPSOIL
TOP DEPTH, feet below surface	Contact	0	1	0	1	NA	NA	NA	NA
BOTTOM DEPTH, feet below surface	Criteria	0.5	2	0.5	2	NA	NA	NA	NA
VOLATILES (MG/KG) (Continued)									
DICHLORODIFLUOROMETHANE	52000	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
ETHYLBENZENE	22000	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
ISOPROPYLBENZENE	25000	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
M+P-XYLENES	410000	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
METHYL ACETATE	NC	0.17 J	0.052 UJ	0.18 J	0.058 J	NA	NA	NA	NA
METHYL CYCLOHEXANE	NC	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
METHYL TERT-BUTYL ETHER	1500	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
METHYLENE CHLORIDE	1300	0.18 J	0.25 J	0.22 J	0.22 J	NA	NA	NA	NA
O-XYLENE	410000	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
STYRENE	400	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
TETRACHLOROETHENE	200	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
TOLUENE	50000	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
TOTAL XYLENES	410000	0.086 U	0.078 U	0.074 U	0.082 U	NA	NA	NA	NA
TRANS-1,2-DICHLOROETHENE	3800	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	10	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
TRICHLOROETHENE	110	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	79000	0.057 U	0.052 U	0.049 U	0.054 U	NA	NA	NA	NA
VINYL CHLORIDE	3.8	0.029 U	0.026 U	0.025 U	0.027 U	NA	NA	NA	NA

Notes:
NA - Not applicable.
NC - No criterion.
U - Not detected at detection limit shown.
J - Estimated.
UJ - Not detected at estimated detection limit shown.
UR - Not detected. Result rejected, poor blank spike recovery.
mg/kg - milligrams per kilogram.
PCBs - Polychlorinated biphenyls
SAMPLE DATE - First four digits are year, next two are month, last two are day.

SAMPLE LOCATION SKETCH



FIELD SAMPLING FORMS

SOIL & SEDIMENT SAMPLE LOG SHEET



Tetra Tech Inc.

Event:

QUARTERLY MONITORING

Project Site Name:

DETROIT-ATWATER (D-A)

Project No.:

112602435

Sample ID No.: DA-56001-0006	Sampled By: TR, MM
Sample Location: (D-A)	Sample Date: 3-18-14
QA/QC Duplicate ID: —	MS/MSD Collected: YES <input checked="" type="checkbox"/> NO

MATRIX / CONCENTRATION

- | | |
|--|---|
| <input checked="" type="checkbox"/> Surface Soil | <input type="checkbox"/> Low Concentration |
| <input type="checkbox"/> Subsurface Soil | <input type="checkbox"/> High Concentration |
| <input type="checkbox"/> Sediment | |

GRAB SAMPLE DATA

Time: 1530	Depth Interval: 0-6	Color: Black	Description (Sand, Silt, Clay, Moisture, etc.): FINE SAND, TR MED SAND
Method: HAND CORER			
Monitor Reading (ppm): —			

MULTIPLE / COMPOSITE SAMPLE DATA

Method:		PID Readings (Range in ppm):		
Sample ID	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION

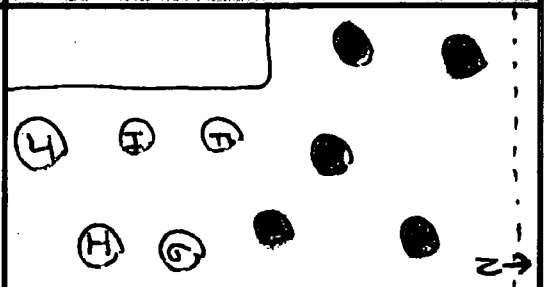
Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
VOCs		MEDIA	1	40 ML	VDA VIAL	<input checked="" type="checkbox"/>
SVOCs PCB METALS		NA	1	902	JAR	<input checked="" type="checkbox"/>

OBSERVATIONS / NOTES

COMPOSITE sample collected from locations A, B, C, D, E.

VOL sample WAS NOT A composite, collected from location D.

MAP



Coordinates:	N	E	Signature(s):
			Mark H. Thompson

SOIL & SEDIMENT SAMPLE LOG SHEET



Tetra Tech Inc.

Event:

Quarterly Monitoring

Project Site Name:

DETROIT-ATWATER (D-A)

Project No.:

112602435

Sample ID No.: DA-58001-1224	Sampled By: TR, MM
Sample Location: (D-A)	Sample Date: 3-18-14
QA/QC Duplicate ID: —	MS/MSD Collected: YES <input checked="" type="radio"/> NO <input type="radio"/>

MATRIX / CONCENTRATION:

☐ Surface Soil

☒ Subsurface Soil

☐ Sediment

☐ Low Concentration

☐ High Concentration

GRAB SAMPLE DATA:

Time: 1550	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method: Hand Corer - GRAB	12-24	BROWN	FINE SAND, TR Med SAND
Monitor Reading (ppm): —			

MULTIPLE / COMPOSITE SAMPLE DATA:

Method:		PID Readings (Range in ppm):		
Sample ID	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
VOCS		MEON	1	40 ml	VCA VIAL	<input checked="" type="checkbox"/>
SVOCs, PCB, METALS		NA	1	902	JP	<input checked="" type="checkbox"/>

OBSERVATIONS / NOTES:

composite sample collected from locations A, B, C, D, E.				MAP: <div style="text-align: center;"> </div>	
Coordinates:	N	E		Signature(s):	

SOIL & SEDIMENT SAMPLE LOG SHEET



Tetra Tech Inc.

Event:

QUARTERLY MONITORING

Project Site Name:

DETROIT ATWATER (D-A)

Project No.:

112602435

Sample ID No.: <u>DA-SBCVE-0006</u>	Sampled By: <u>TR, MM</u>
Sample Location: <u>D-A</u>	Sample Date: <u>3-18-14</u>
QA/QC Duplicate ID: <u>—</u>	MS/MSD Collected: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>

MATRIX/CONCENTRATION:

☐ Surface Soil

☒ Subsurface Soil

☐ Sediment

☐ Low Concentration

☐ High Concentration

GRAB SAMPLE DATA:

Time: <u>1600</u>	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method: <u>HAND CURED</u>	<u>0-6</u>	<u>BLACK</u>	<u>FINE TO MEDIUM SAND</u>
Monitor Reading (ppm): <u>—</u>			

MULTIPLE/COMPOSITE SAMPLE DATA:

Method:		PID Readings (Range in ppm):		
Sample ID	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

SAMPLE COLLECTION INFORMATION:

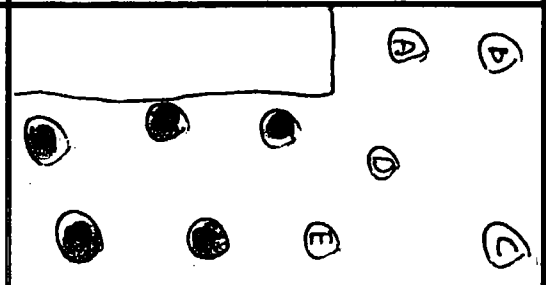
Analysis	Method	Preservative	Number	Vol.	Bottle Type	Collected
<u>VOCs</u>		<u>MEOH</u>	<u>1</u>	<u>40 ml</u>	<u>VDA VIAL</u>	<u>✓</u>
<u>SVOCs, PCBs, METALS</u>		<u>NA</u>	<u>1</u>	<u>9 oz</u>	<u>JAL</u>	<u>✓</u>

OBSERVATIONS/NOTES:

MAP:

COMPOSITE sample collected from locations F, G, H, I, J.

VOL sample WAS NOT A COMPOSITE. collected from location 'F'



Coordinates:	N	E	Signature(s):
			<u>Mark H. Mengel</u>



QUARTERLY MONITORING
DETROIT-ATWATER (D-A)
112602435

Mark L. Mangel

18 CREW - M. MENGEI 112602435
T. ROJAHN
TUES 03/18/14 USCG - DETROIT ATWATER

0600 HRS - LEFT HOME to pick up M. MENGEI
0630 HRS - ARRIVE @ M. MENGEI'S HOME
MOB RENTAL Eq. into SUV RENTAL
0653 HRS - PURCHASE Ziplock bags @ Walmart
1105 HRS - PICK UP KEY @ CG BASE FOR
DETROIT - ATWATER gate
1115 HRS - ARRIVE @ SITE - UNLOCK gate
MM - RETURN the Key
TR - Stayed @ SITE to OPEN
WELLS

1135 HRS - MM RETURNED to site
PREP to sample GROUNDWATER
DID calibration check on
HORIBAS - VENDOR calibrated
SAME ON 3/14/14

WATER LEVELS (WL)

WELL ID	W.L.	TIME
MW01R	1.50	1205
MW02R	2.05	1200
MW04	3.27	1320
SG @ SLIP	5.42	1325

Tyngdal 3/18/14

WEATHER: Mostly Sunny High 30's

TUES 3-18-14 CONT

SAMPLE ID	START PURGE	END PURGE	SAMPLE TIME	COMMENTS
DA-MW01R-0314	1205	1255	1300	TR
DA-FD031814	"	"	0000	DUP FROM ABOVE WELL
DA-MW02R-0314	1200	1250	1250	(MW)
DA-MW04-0314	1320	1410	1415	(MS/MSD)

TR DID MNA FOR ABOVE SAMPLED
WELLS

FROM DEGC
~1400 HRS - WILL TAMMINGA, ARRIVED
@ SITE to OBSERVE soil sampling
We hadn't layed out the
sampling locations yet &
WERE still sampling the wells
& RUNNING MNA - HE left
the site but said he would
RETURN to observe soil
sampling later (in about an hr)

1500 HRS - LAYED out sample locations
FOR soil sampling Composites

SAMPLE LOCATIONS	SAMPLE ID	SAMPLE TIME
A, B, C, D & E	DA-SB001-0006	1530
A, B, C, D & E	DA-SB001-1224	1550
F, G, H, I & J	DA-SB002-0006	1600
F, G, H, I & J	DA-SB002-1224	1630

Tyngdal 3/18/14

TUES 03-18-14 CONT

~1600 HRS - W. TAMMINGA RETURNED
to observe soil sampling
& took a few photos

1730 HRS - FINISH CLEANUP @ SITE
& LEAVE FOR HOME

1739 HRS - PURCHASE ICE @
SHELL STA.

1726 HRS - DINNER

1755 HRS - BACK ON Rd. to HOME

2200 HRS - ARRIVE @ M. MENDEL'S HOME
DEMOS VARIOUS EQ. INTO
MM'S TRUCK

22:15 HRS - GAS UP SUV AFTER
LEAVING MM'S RESIDENCE

22:40 HRS - ARRIVE HOME DEMOB SUV
RENTAL

23:04 HRS - RETURN SUV RENTAL

23:25 HRS - RETURN HOME

END

Terry Rozell

LABORATORY DATA AND DATA VALIDATION REPORT

LABORATORY DATA AND DATA VALIDATION REPORT
(pdf of report is on CD)